14738

EX·LIBRIS·COLL·MED·PHILAD·INSTIT·A·D·MDCCLXXXVII·

NON SIBI SED TOTI

Class ______ No. ______

Presented by

John Aulde, M.D.

THE

AMERICAN THERAPIST.

A MONTHLY RECORD

OF

MODERN THERAPEUTICS.

EDITED BY

JOHN AULDE, M.D.

VOL. II.
JULY 1893 TO 1894.

COLLEGE OF PHYSICIANS
LIBRARY,
MAR [illegible] 1895
OF PHILADELPHIA.

PUBLISHED BY
THE AMERICAN THERAPIST PUBLISHING COMPANY,
NEW YORK.

Copyrighted 1893
by
THE AMERICAN THERAPIST PUBLISHING CO.

CONTRIBUTORS TO VOLUME II.

Abbot, Dr. W. C., Chicago.
Aulde, Dr. John, Philadelphia.
Bacon, Dr. John E., Wellsboro, Pa.
Barbour, Dr. John Ford, Louisville.
Bergey, Dr. D. H., Philadelphia.
Bleyer, Dr. J. Mount, New York.
Bourget, Prof., Lausanne, Switzerland.
Caldwell, Dr. W. C., Chicago.
Cantrell, Dr. J. Abbott, Philadelphia.
Collins, Dr. James, Philadelphia.
Croasdale, Dr. Hannah T., Philadelphia.
Curtin, Dr. Roland G.. Philadelphia.
Dorland, Dr. W. A. Newman, Philadelphia.
Field, Dr. F. T., Elroy Wis.
Galloway, Dr. W. A., Xenia, O.
Griffin, Dr. J. F., Shreveport, La.
Keen, Dr. W. W., Philadelphia.
Keyser, Dr. P. D., Philadelphia.
Lewis, Dr. Louis, Philadelphia.
Linn, Dr. Thomas, Aix-les-Bains, France.
Macfarlan, Dr. E., New York.
Manley, Dr. Thomas, H., New York.
Marcus, Dr. H. D., Philadelphia.
McCall, Dr. R. B., Hamersville, O.
McCormick, Dr. H. G., Williamsport, Pa.
McLaughlin, Dr. J. W., Austin, Texas.
Merrill, Dr. Oscar H., Corinna, Me.
Merz, Dr. Charles H., Sandusky, O.
Myers, Dr. W. W., Philadelphia.
Moore, Dr. T. W., Everett, Pa.
Morton, Dr. T. G., Philadelphia.
Murdoch, Dr. E. P., Chicago.
Noble, Dr. Charles P., Philadelphia.
Pearse, Dr. H. E., Kansas City.
Pontius, Dr. C. R., Fremont, O.
Poole, Dr. Thomas W., Lindsay, Ont.
Sangree, Dr. E. B., Philadelphia.
Schultz, Dr. Hugo, Greifswald, Germany.
Solis-Cohen, Dr. Soloman, Philadelphia.
Stout, Dr. E. J., Philadelphia.
Thomas, Dr. A. H., Hurley, Wis.
Vaughan, Dr. Victor C., Ann Arbor, Mich.
Watson, Dr. Edward W., Philadelphia.
Wyman, Dr. Hal C., Detroit, Mich.

14738

INDEX TO VOLUME II. (JULY 1893–4.)

PAGE
Abdominal Disorders, Auto-Infection in.... 212
Acetanilid, a Substitute for Iodoform....... 274
Acid, Boric 14
Acid, Cathartic 48
Acid, Hippuric, as a Diuretic.............. 210
Acid, Picric, in Epithelioma............... 45
Acid, Syrup of Hydriodic 156
Actinomycosis 329
Adenin 65
Advertising. A New Method of 192
Air, Determining Impurities in............. 96
Air, Sewer, Microbes and 279
Air-Supply for Hospitals, Artificial 160
Air, Synthesis of. 96
Air we Breathe, The 96
Akromegaly, Exhibition of a Case of........ 350
Albuminuria in Gynecological Patients..... 141
Albuminuria, Treatment of 45
Alcoholism, Apomorphine in................. 90
Alimentation, Hypodermatic 209
Alteratives and Cellular-Therapy........... 302
American Hemp, U. S. P. 1890 275
American Medical Association, 44th meeting 16
Ammonia, Chloride of, in Renal Disease.... 296
Amyl, Nitrite of, and Trinitrin in Hystero-Epilepsy 294, 299
Analgen 240, 323
Anchylosis, Traumatic, Treatment of 164
Anemia of Nasal Origin..................... 346
Anemia, Extract of Bone Marrow in the Treatment of 352
Anemia, Toxic, Treatment of 171
Anemia, Tropical Climate a producer of.... 153
Aneurism, Arterio-venous, of the Internal Carotid and Jugular................ 261
Angina Pectoris. Report of a Case of 283
Anhydrogluco chloral 323
Animal Extracts 194
Announcements of Publications:
  Beard's Nervous Exhaustion............... 223
  Bulkley's Syphilis in the Innocent........ 159
  Funk & Wagnall's Standard Dictionary ... 95
  Gould's New Illustrated Medical Dictionary 127
  Keil's Medical and Dental Register....... 252
  Landis' How to Use the Forceps........... 223
  National Dispensatory.................... 223
  Saunder's American Text-Book of Gynecology 159
  Tiffany's Anomalies of Refraction and of the Muscles of the Eye 335
  Treat's International Medical Annual 1894 223
  United States Dispensatory............... 223
Antisepsis, A Revolution in: Electrozone... 55
Antiseptic Varnish......................... 46
Antiseptics, Essential Oils as 14
Auto-Infection in Abdominal Disorders..... 212
Auto-Intoxication.......................... 128
Appendicitis, Management of 17
Appendicitis, Suppurating 68
Apocynum Cannabinum, The Diuretic Action of 275
Apomorphine in Alcoholism.................. 90
Apomorphine, Some Notes on................. 356
Argentamin 296
Aristol, Naphthol-......................... 121
Arrow Poison, Microbes and................. 160
Arsenite of Copper in Typhoid Fever 169
Arteries, Ligation of Common and External Carotid.................................. 261
Asphyxiation from Illuminating Gas, Report of Recovered Cases 144
Asphyxia, Oxygen in........................ 148

PAGE
Association Meetings:
  American Electro-Therapeutic Association 21
  American Medical Association............ 16
  American Medical Association............ 214
  American Medical Association, San Francisco, Meeting of the 273, 299, 354
  American Pharmaceutical Association.... 214
  Association of American Physicians 354
  Association of Military Surgeons of the United States 280
  Congress of American Physicians and Surgeons 280
  International Medical Congress, XIth..... 354
  International Sanitary Congress.......... 214
  Journal of the American Medical Association 22
  Medical Association of Georgia........... 299
  Miss. Valley Medical Association 21
  National Medical Societies of America, 1894, Meeting of the................280, 308
  New York County Medical Society........ 214
  Ohio Medical College Alumni............. 22
  Penn. State Medical Society......214, 280, 354
Asthma, Freezing the Vagi for.............. 143
Asthma, Ice in Bronchial................... 215
Bacteria, "Cold" due to.................... 209
Bacteriology............................... 194
Beta-naphthol as an Intestinal Disinfectant. 125
Bismuth Impurities......................... 96
Bismuth Salts Compared 269
Bismuth Subgallate 301
Bismuth Subgallate, or Digestive Ferments? 269
Blood, Antiseptic Properties of............ 116
Blood-corpuscles Counting Instrument, Daland's 364
Blood-serum, Principle Involved in the Subcutaneous 213
Book Notices:
  Abrams: Clinical Diagnosis 335
  Allen: Handbook of Local Therapeutics.. 62
  Baldy: American Text-Book of Gynecology 222
  Bartholow: Practical Treatise on Materia Medica and Therapeutics.............. 190
  Beard—Rockwell: A Practical Treatise on Nervous Exhaustion (Neurasthenia) 278
  Bridger: Man and his Maladies, or the Way to Health 158
  Connecticut Medical Directory 159
  Corning—Webster: A Treatise on Headache and Neuralgia, etc................ 306
  Crusius: Funny-Bone..................... 223
  Currier: Outlines of Practical Hygiene.... 125
  Dana: Text-Book of Nervous Diseases ... 126
  Firebaugh: The Physician's Wife, and Things that Pertain to her Life......... 277
  Funk & Wagnalls: The Standard Dictionary 251
  Gamaleia: The Bacterial Poisons... ... 93
  Gould: The Meaning and Method of Life.. 92
  Graham: Recent Developments in Massage 62
  Keen: Operation Blank 127
  Kirchhoff: Handbook of Insanity 127
  Landis—Bushong: How to Use the Forceps, etc............................ 278
  Lea Brothers and Co.: The Year-book of Treatment for 1893..................... 62
  Leonard's Physician's Pocket-Day-Book .. 159
  Lindsay & Blakiston's Visiting List for 1894 190
  Linn: The Health Resorts of Europe..... 30
  Manley: Hernia: Its Palliative and Radical Treatment............................ 277
  Martin: Essentials of Minor Surgery, Bandaging and Venereal Diseases 158

INDEX.

PAGE

- Martin: Sexual Weakness and Impotence, in the Male and Female 30
- Merz: Music and Culture 94
- Nagelvoort: Flückiger's Reactions 125
- Pepper: A Text-Book of the Theory and Practice of Medicine by Amer. Teachers 360
- Pharmacopoeia of the United States of America (1890) 126
- Remondino: The Modern Climatic Treatment of Invalids with Pulmonary Consumption in Southern California 277
- Robinson: Electro Therapeutics of Neurasthenia 30
- Senn: Syllabus of Lectures on the Practice of Surgery 222
- Shaw: Essentials of Nervous Disease and Insanity 363
- Stewart: Treatment of Typhoid Fever 363
- Transactions of the Medical Society of the State of Pennsylvania 94
- Treats' International Medical Annual 334
- Trouessart-Hurd: AntisepticTherapeutics. 306
- Tyson: Manual of Physical Diagnosis 158

Bowels, Ulceration of 89
Bran, Raising Babies in 15
Brain, Examination by Electric Light 192
Bread, Raising (Yeast fungi) 96
Bronchitis, Acute, in Infants 331
Brown-Sequard's Organic Liquids 346
Bryonia Alba for Hemicrania 274
Butter, Sophisticating 64
Calcium Sulphide in Phthisis 49
Calcium Sulphide, Is (it) Antiseptic? 182
Cancer, Epithelial, An Observation of the Effect of Erysipelas on 313
Canabis Indica, Administration of 22
Cantharides Poisoning 34
Carbuncle, The Treatment of 150
Catalepsy: with Report of a Case 263
Catarrh Cure 48
Cautery Purposes, The Edison Current for 128
"Cell, Life from the" 308
Cell-Theory, The 114
Cellular-Therapy, A Contribution to 81
Cellular-Therapy, Alteratives and 302
Centrifugal Decanter 16
Cesium and Rubidium, The Therapeutic Uses of the Salts of 358
Charcot, The Successor of 277
Chest, Penetrating Wounds of 269
Chloralamid as a Sedative 171
Chloralose 323
Chloroform in Colica Pictonum, or Lead Colic. 286
Chloroform Narcosis 210
Cholera, A New Cure for 128
Cholera, Garlic vs. 96
Cholera, Immunized by Choleric Cultures 268
Cholera Inoculations 32
Cholera, Occurence of 96
Cholera Record 53
Cholera, Standing Committee on 21
Cholera, The Control of 20
Cinnamol 14
Classical Medicine, The Decadence of 86
Coal-tar Products 195
Cocaine in Local Applications, Danger of 44
Coccygodynia—Ether Spray 344
Code, None to Speak of 271
Coffee and Tea, How to Drink them 336
Colic, Treatment of Hepatic 346
Colica Pictonum, or Lead Colic, Chloroform in 286
Constipation, Magnesium Sulphate Hypodermatically for 276

PAGE

Constipation, Mechanical Treatment of 95
Consumption, Creosote in 92
Consumptives, National Sanitarium for 55
Consumption to be Reported as a Contagious Disease 272
Contagious Diseases in the Philadelphia Municipal Hospital 279
Copper Arsenite 114
Copper Arsenite in Typhoid Fever 247
Copper Arsenite Mixtures 49
Copper, Phosphate of, in Tubercular Tumors. 46
Creosote 195
Creosote in Consumption 92
Creosote in the Treatment of Leukemia 75
Creosote, Inhalations of, in the Treatment of Tuberculosis 111
Croup, False, Treatment of 85
Croup, Membranous, Inoculation in Diphtheria and 225
Culture a Source of Happiness 96
Daland's Blood-corpuscle Counting Instrument 364
Danube Water, Pollution of 336
Delayed Union in Fracture, Cases of 349
"Devil's Advocate" in Medicine 53
Dextro-cocaine 80
Diaphtherin 48
Diarrhea, Choleraic 86
Diarrheal Diseases, The Treatment of 317
Digestion, Bicarbonate of Soda and 74
Digestive Leucocytosis 219
Digitoxine 45
Di-iodoform 266, 323
Diphtheria and Membranous Croup, Inoculation in 225
Diphtheria, An Unsuspected Factor in the Production of 273
Diphtheria, A Prescription for 249
Diphtheria, Discussion on 271
Diphtheria, Petroleum for 128
Diphtheria Prophylaxis 331
Diphtheria, Protection Against 224
Diphtheria, Researches in 312
Diphtheria, Sulphur Dioxide in 357
Diphtheria, The General Treatment of 248
Diphtheria, The Dissemination of 256
Diphtheria, The Local Treatment of 248
Diphtheria, The Modern Treatment of 304
Diphtheria, The Use of Tartar Emetic in 249
Diphtheria, Treatment of 57, 84
Dirt Penalty, The 116
Disease in Philadelphia, An Exciting Cause of, 244
Disease, the Race Factor in 123
Disinfectin 210
Disinfection, Electrical 32
Dispensaries, The Function of 19
Doses, Small 84
Dosimetric Practice 180
Drug Action 217
Drug Action, Philosophy of 136
Drugs, Actions of, on the Intestines, 129, 161, 196
Drugs, Action of, on Nutrition 186
Duboisine: Toxic Symptoms 74
Dulcin 323
Dyspepsia, Ipecacuanha in Flatulent 46
Eclampsia Gravidarium et Parturentium 61
Educational Work (in Therapeutics) 115
Electrical Disinfection 32
Electricity, Influence on Plants 64
Electro-Magnetic Waves, To see 91
Electrozone in Ophthalmic Practice 55
Endo-enteritis 88
Entero-Colitis During Low Infancy 117
Epilepsy, The Pathology of, 331

PAGE

- Epileptics, A Hospital for 159
- Epileptics, State Supervision of 32
- Epithelioma, Picric Acid in, 45
- Ergot 364
- Erysipelas, An Observation of Effects of, on Epithelial Cancer 313
- Erysipelas, Treatment of Facial 15
- Essential Oils as Antiseptics 14
- Ether Spray in Coccygodynia 344
- Ethylen-periodide 323
- Eucalyptine, Bichlorate of 16
- Eucalyptus in Pulmonary Troubles 48
- Euchlorin, 322
- Europhen 74, 290
- Exalgine, Therapeutic Uses of 324
- Fairy Tale of Science, A 336
- Fee, A Liberal 273
- Ferratin 296
- Fever Annunciator 18
- Fever, Typoid 118
- Fever, Yellow, The Cause of 118
- Filter, Asbestos-Porcelain, A New 160
- Filter Water Upward, To 160
- Fluids with Meals 224
- Formanilid 185
- Formulæ, The Absence of 272
- Fracture, Cases of Delayed Union in 349
- Fumes of Lead 32
- Function of Hospitals and Dispensaries 19
- Galega, a Galactagogue 45
- Galippe's Microbes 54
- Gallanol 185, 323
- Galvanic Current on the Blood, Action of 192
- Ganga as an Intoxicant 54
- Ganglion Cells, Changes in 153
- Ganglion, The Treatment of 275
- Garbage Problem, The 192
- Garbage Treatment 32
- Garlic vs. Cholera 96
- Gastrodiaphane, Einhorn's 184
- Gastrodiophany, Einhorn's method 18
- Gastro-Intestinal Catarrh, Treatment of 357
- Gastro-Intestinal Disease Prevalent in New York, Types of 117
- Gelsemium: Some of its Uses 282
- Glossitis, Glycerin in 143
- Gloves, Rubber-tissue 336
- Glycerin in Glossitis 143
- Glyco-phosphates 346
- Gold and Manganese in Tuberculosis 12
- Grafting Arms 95
- Guaiacol as an Antipyretic 250
- Guaiacol, chem. pure, crystals 286
- Guaiacol by Inunction 245
- Guaiacol for Whooping Cough 303
- Gun-shot Wound, Result of a 261
- Gynecological Surgery, The Relation of Certain Urinary Conditions to 141
- Hanbury Memorial, The 95
- Hanging, A Substitute for 271
- Hay Fever, To Control 160
- Headache, Percussion for 95
- Heat, Functional Disturbances Caused by 153
- Heat, The Action of, in the Treatment of Ringworm 281
- Hemicrania, Bryonia Alba for 274
- Hepatic Disorder, Complicated by Influenza 347
- Hernia, Therapeutics of Strangulated 207
- Herpes Zoster 60
- Hospitals, The Function of 19
- How do Remedies Cure Disease? 88
- Hypnotics Compared 332
- Hypodermatic Alimentation 209
- Hypodermatic Syringe, and Some of its Uses 35

PAGE

- Hysteria, Was it? 300
- Hystero-Epilepsy, Nitrite of Amyl and Trinitrin in 294, 299
- Ice in Bronchial Asthma 215
- Ice in Phlegmasia Alba Dolens 49
- Ichthyol-traumaticine 15
- Ill-health in American Women, Unregarded Causes of 201
- Index Medicus for Busy Practitioners, An 233
- Indigestion, Intestinal 20
- Inebriety, The Scientific Treatment of 304
- Infant Mortality in Large Cities 52
- Infectious Diseases, The Principles of Immunity and Cure 65
- Influenza and its Treatment 211
- Influenzal Neuritis 288
- Influenza Patients, Urine Ptomaine of 280
- Influenza: Recent Methods of Treatment 287
- "Inhibition" and "Interference" may be Dispensed with, How 75, 104
- Inoculation in Diphtheria and Membranous Croup 225
- Insufflator, De Bauns' 160
- International Medical Congress, Postponement of 55
- Intestines, Actions of Drugs on the 129, 161, 196
- Ipecacuanha in Flatulent Dyspepsia 46
- Iron, Absorption of, in the Animal Body 152
- Iron, Indications for 330
- Iron, Tinct. Chloride of 300
- "Jicama" 49
- Journalism, Modern Medical 279
- Keloid, Resorcin for 48
- Koch's Success 192
- Kidney, A New Method for Examining 260
- Kiss the Baby, Do Not 312
- Lead Colic (Colica Pictonum), Chloroform in, 286
- Lead, Fumes of 32
- Leprosy, To Study 96
- Leucocytosis and Pneumonia 302
- Leucocytosis, Digestive 219
- Leucocytosis, Is (it) Defective in Tuberculosis? 353
- Leukemia, Creosote in the Treatment of 75
- "Life from the Cell" 308
- Lipanin 324
- Llareta: a new Anti-gonorrheic 210
- Losophan 14
- Lung, A Mechanical Device for Illustrating the Movements of the 267
- Lysol, An Efficient Antiseptic 72
- Magnesium Sulphate Hypodermatically for Constipation 276
- Magnesium Sulphate in the Treatment of Summer Diarrhœa 276
- Malakin 224, 267, 324
- Malaria, Forms of, and their Characteristic Features 123
- Malarial Fever, Yellow Fever and, Pathological Anatomy Compared 154
- Manganese, Gold and, in Tuberculosis 12
- Marrow, Extract of Bone, in the Treatment of Anemia 352
- Materia Medica and Therapeutics, Hints to Students on 330
- Medical Examining Boards in Pennsylvania. 32
- Medical Grade, A New 364
- Medical Journals, Notes on:
  - Alkaloidal Clinic 307
  - Archives of Pediatrics 335
  - Kansas Medical Journal 335
  - Matthew's Medical Quaterly 307
  - Medical Index 355
  - N. Y. State Medical Reporter 307

INDEX.

Page
  Railway Surgeon, The 335
  Refractionist, The 335
  Southern Medical Review 307
  St. Louis Clinique 355
  Therapeutic Notes 307
Meat-eaters, The Vitality of 279
Medical Teaching 298
Melaleuca Viridiflora 14
Mercurial Solutions in Surgery 57
Mercuric Iodide, Insolubility of 23
Metal, An Alleged New 364
Methacetin 324
Methylene Blue 204
Metric Equivalents 228
Microbes and Arrow Poison 169
Microbes and Sewer Air 278
Milk, Sterilized 125
Mint, Inhalations of, for Phthisis 304
Morphine, Effects of, on the Female Organs 196
Moyrapuama: A New Nerve-Tonic and Aphrodisiac 264
Mucus a Bactericide 179
Muira Puama 260
Municipal Sanitation 273
Myalgia, The Treatment of 334
Myxedema, Its History, Etiology, Pathology and Treatment 1
Myxedema, The Thyroid Treatment of 97
Myxedema, A Case of 305

Naphthol-Aristol 121
Nasal Troubles, Treatment of 346
Nephritis, Lactate of Strontium in 332
Nerve-Cell, Microscopical Study of the Living, During Stimulation 155
Nervous Interference, the Hypothesis of 38
Neuritis, Influenzal 288
Newberry Library, The 214
New Remedies. A Decade of 209
Newspaper Medication 272
Nuclein 65, 79, 116
Nuclein, Definition of 355
Nuclein, Egg- 80
Nuclein, Testicular- 79
Nuclein, Thyroid- 80
Nuclein, Yeast- 79
Nuclein Solutions, A Note on the Employment of 291
Nuclein Solutions, Clinical Observations on 236
Nuclein Solutions, Clinical Reports on the Use of 319
Nuclein, The Relationship of, to Uric Acid 241
Nuclein-Therapy 181
Nuclein, The Supply of 328
Nucleins in Tuberculosis, The Use of 327
Nucleo-Albumin, Definition of 355
Nutrition, Action of Drugs on 186
Nutrition, Importance of Inorganic Salts in 60
Nux Vomica, Possibilities in the Therapy of 176, 204

Obituary Notices:
  Charcot, Dr. Jean Martin 83
  Clark, Sir Andrew 192
  Dupon, Dr. S. F. 271
  Hall, Dr. John C. 28
  Levick, Dr. James J. 28
  Maisch, Prof. John M. 83
  Peters, Dr. John C. 192
  Sommerbrodt, Prof. Julius 83
Ocumillo for Snake-Poison 128
Oil, Amber 95
Oil, Cod Liver 330
Oil of Niaouli 14
Opium Smoking for Retention of Urine 328

Page
Organic Liquids, Brown-Sequard's 346
Ortho-oxyethylanamono-acetylamido-chinolin 323
Over-feeding, The mistake of 96
Oxygen in Asphyxia 148
Pan-American Medical Congress, The 82
Para-acetanisidin 324
Paracelsus, Theory of 326
Para-chloralose 323
Paraform 316
Para-oxymethyl-acetanilid 324
Para-phenetol-carbamid 323
Pasteur-Institute, The Chicago 183
Pasteur-Institute, The New York 159, 308
Pathology as a Therapeutic Guide 50
Pathology, Studies in 33
Peritonitis, Quinine in Puerperal 255
Petroleum 149
Petroleum for Diphtheria 128
Petrolatum, Early Use of 192
Pheduretin 29
Phenosalyl 48
Phlegmasia Alba Dolens, Ice in 49
Phosphorus Poisoning 33
Phthisis, Calcium Sulphide in 49
Phthisis, Inhalations of Mint for 304
Phthisis, Nature's Cure of 216
Phthisis, Treatment of, with Mint 347
Photographing Wave Movements 95
"Physical Theory," McLaughlin's of Fermentation, Infection, etc 10
  Reply to 24
Physician, The Truly Great 278
Physicians Cannot Testify 308
Physiological Remedies, A Plea for 120
Piperazin 208
Piperazin in Diabetes 251
Piperazin, uric acid solvent 343
Placenta, The Effect of Toxic Substances in the 274
Pneumonia 216
Pneumonia, Leucocytosis and 302
Potassium Permanganate, Antidotal Action of 245
Principles of Immunity and Cure in Infectious Diseases, The 65
Prize, The Samuel D. Gross 192
Professional Policy 19
Proteids, Defensive 326
Ptomaine, Urine, of Influenza Patients 280
Publications Received 31, 63, 191, 223, 279, 307, 335
Pulmonary Troubles, Eucalyptus in 48
Pure Water *vs.* Disease 53
Quinine in Puerperal Peritonitis 255
Race Factor in Disease, The 123
Red Globules (Corpuscles), The Number of 152
Remedies, Physiological, A Plea for 120
Renal Disease, Chloride of Ammonia in 296
Resorcin for Keloid 48
Respirator, Desant's 147
Respiring Tube, A New 145
Retinol 128
Revulsion, The Theory of 100
Rheumatism, Acute, Valvular Heart Disease Following 109
Rheumatism, Liniment for 48
Rheumatism, Treatment of 110
Rheumatism, Treatment of Acute 46
Rhus Toxicodendron 114
Rhythmic Traction of the Tongue 347
Ringworm, The Action of Heat in the Treatment of 281
Rubidium-Ammonium Bromide 185

INDEX.

PAGE

Rubidium Salts 189
Rubidium, The Therapeutic Uses of the Salts of Cesium and 358
Rupture of the Graafian Vesicle, Pain on 90
Salacetol 314
Salicyl.-paraphenetidin 324
Salocoll 185
Salophen in Septic Infection 300
Sanatarium (Yuma, Ariz.) 271
Sanatol 324
Sanitarium for Consumptives, National 55
Sanitation, Municipal 273
Santonin, The Dose of 215
Scabies, The Treatment of 124
Scientific *vs.* Practical 297
Septic Infection, Salophen in 300
Sero-Therapy 267
Shock, Surgical, Treatment of 172
Sickness Caused by Opening Streets 96
Silver Phosphate in Ethylendiamin 296
Sleeplessness, A Cure for 192
Soap Bubble, A Frozen 336
Soda, Bicarbonate of, and Digestion 74
Solphinol 323
Sound-wave Theory 95
Small Doses 84
Smoke Consumer 9
Steam-heating of Railway Coaches 270
Stomach, Chemical Examination of the Healthy 59
Stomach, Spontaneous Rupture of 43
Stone in the Kidney 260
Strychnine, Combination of Two Alkaloids 48
Strontium, Lactate of, in Nephritis 332
Studies in Pathology 33
Styrone 185
Sparteine, Physiological Actions of 333
Sparteine Sulphate 253
Spasm, The Physiology of 81
Spasmotin 295
Sphacelotoxin 295
Specialists and the General Practitioner 21
Spleen, Ablation of 116
Suboxidation from the Life Insurance Standpoint 270
Sulphur Dioxide in Diphtheria 357
Summer Complaint, Treatment of 86
Summer Diarrhea, Magnesium Sulphate in the Treatment of 276
Summer Diarrhea of Nursing Infants 275
Sunbeam, Sound of 80
Sunstroke and Heat Exhaustion 53
Syrupus Acidi Hydriodici 156
Sweetbread, The True 308
Tannin an Intestinal Antiseptic 275
Tar Pills 45
Tartar Emetic in Diphtheria, The Use of 249
Tattooing the Record of Treatment 15
Tea, Coffee and, How to Drink them 336
Test-tube, An improved 32
Teucrin 29
Teucrium scordium 29
Therapeutic Action, The Physiological Basis of 119
Therapeutics, Hints to Students on Materia Medica and 330
Therapeutics, Notes on Recent 193
Therapeutics, Prudence in 44
Therapeutics, The Philosophy of 121
Threshing Over Old Straw 246
Thymol in Toothache 210
Thyroid Extract 9
Thyroid, Powdered 9

PAGE

Thyroid, Treatment of Myxedema, The 97
Thyroids 9, 116
Tincture Chloride of Iron 300
Tobacco, Hygienic 95
Toy Motor as a Rapid Interrupter 285
Toxic Substances, The Effect of, in the Placenta 274
Trials and Tribulations of a Surgeon, The 229
Trinitrin, Nitrite of Amyl and, in Hystero-Epilepsy 294, 299
Trional as a Hypnotic 156
Tromometre, Quintard's 64
Tropa cocaine 74
Tubercular Lesions, Treatment of Local 15
Tubercular Tumors, Phosphate of Copper in 46
Tuberculin as a Diagnostic Agent 262
Tuberculin as a Diagnostic Agent, and its Value to the Human Race 309
Tuberculin when Used as a Diagnostic Agent, The Ultimate Effect of 325
Tuberculocidin in Pulmonary Tuberculosis. 69
Tuberculosis, Gold and Manganese in 12
Tuberculosis, Inhalations of Creosote in the Treatment of 111
Tuberculosis, Is Leucocytosis Defective in? 353
Tuberculin, Koch's, The Treatment of Pulmonary Tuberculosis with 276
Tuberculosis, Pulmonary, The Treatment of, with Koch's Tuberculin 276
Tuberculosis, Pulmonary, Tuberculocidin in 69
Tuberculosis, Spread of 54
Tuberculosis, The Restriction and Prevention of, in the District of Columbia 364
Tuberculosis, The Use of Nucleins in 327
Turpentine Poisoning 35
Typhoid Fever, 118
Typhoid Fever, Arsenite of Copper in 247, 169
Typhoid Fever, New Treatment of 246
Typhoid Statistics in Philadelphia and London 280
Typhoid Fever, Treatment by Guaiacol Inunctions 246
Typhoid Fever, Treatment of 18
Typhoid and Typho-malarial Fever 188
Typho-Malarial Fever, Is (it) a Disease *per se?* 295
Typho-malarial Fever, Typhoid and 188
Uric Acid Diathesis and its Treatment 337
Uricedin 48
Urinary Conditions, The Relation of, to Gynecological Surgery 141
Urine, Opium Smoking for Retention of 328
Urticaria, Treatment of 84
Uteri, Report of a Case of Two Separate and Distinct, Centrally Situated and not Connected 257
Vagi, Freezing the, for Asthma 143
Valvular Heart Disease Following Acute Rheumatism 109
Valzin 45
Vapor-bath, A Cheap 347
Ventro-fixation of the Uterus 216
Virginia, A New Pharmacy Law in 364
Vomiting, To relieve 85
Warm, An Easy Method of Keeping 235
Wart Story, A 336
Whey, Carbonated 56
Whooping Cough, Guaiacol for 303
Woman's Natural Instinct 96
Yellow Fever and Malarial Fever, Pathological Anatomy Compared 154
Yellow Fever in Rio Janeiro 271

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, JUNE 15th, 1893. No. 1.

Original Articles.

MYXEDEMA, ITS HISTORY, ETIOLOGY, PATHOLOGY, AND TREATMENT.

With Particulars of a Case Successfully Treated.

By J. LINDSAY PORTEOUS, M. D., F. R. C. S., Ed.

HISTORY.—In 1873, Sir Wm. Gull, of London, a man who possessed in a marked degree that which is necessary to make a great physician—namely, great power of observing and generalizing, which enables him to separate and individualize out of the vast and varied aggregate of what is generally called "disease," a special variety, gave a description of what he called a "disease". Doubtless this "disease" had existed before, but no one had previously described it. Gull observed that it resembled in many ways cretinism, and therefore called it a "cretinoid" disease. Besides distinguishing it he ventured to suggest the cause, and his suggestion ultimately proved to be correct. He thought that the thyroid gland had something to do with it, either from being attacked by some form of disease, or else from becoming atrophied. Little even now is known of the utility of the thyroid, but it evidently has something to do with blood-formation. In 1877 Dr. Ord, of London, gave to the medical world a more elaborate description of this strange disease, and also gave it a name, a most important addition. He called it myxedema, from two Greek words, *μύξα*, mucus, and *οἴδημα*, a swelling.

It occurs most frequently in women, although now and then it is said to have appeared in men. The subjects of it are in mid-life, usually have been healthy, and frequently active in mind and body.

Several years after Ord's interesting communication, Kocher, a Swiss surgeon, noticed that after the removal of the thyroid gland all the symptoms of the "cretinoid" disease of Gull and the "myxedema" of Ord, appeared, thus confirming the theory of these two physicians, that the thyroid was the prime factor in this disease. He found also that if even the smallest portion of the gland was left, these symptoms did not occur. The next advance made in the history of this disease was by Victor Horsley, of London, the well-known cerebral surgeon. He reasoned, that as Kocher had observed that even if a small portion of the gland remained after an operation these myxedematons symptoms did not arise, if he could by some means supply the want a cure would be effected. He, therefore, towards the end of 1889, boldly engrafted a portion of a sheep's thyroid under the skin of a myxedematous patient, with the result of perfect success being obtained. But he found that soon the pieces of thyroid he had engrafted or transplanted became absorbed, the patient relapsing into her former condition. This, although being a step in the right direction, was far from satisfactory. The next step in the mode of treatment was made by Dr. Murray, of Newcastle-on-Tyne, England, and published in the *British Medical Journal* of October 10th, 1891.

From experiments by Bettencourt and Serrano, of Lisbon, which consisted of engrafting a half of a sheep's thyroid beneath the skin below the mamma of either side of a woman, they remarked that the improvement commenced on the *day after* the operation. Such being the case they considered that it was due to absorption of the juice of the healthy thyroid gland by the tissues of the patient and not to the gland becoming vascularized and so functional. From this Murray argued that the same end could be attained by simply injecting the juice of an extract of a thyroid gland of a sheep or other animal beneath the skin. He says: "If we consider that myxedema and cachexia strumpvira are due to the absence from the body of some substance which is present in the normal thyroid gland, and which is necessary to maintain the body in health, it is at least rational treatment to supply that deficiency, as far as possible, by injecting the extract of a healthy gland." Murray's theory has proved the correct one, and undoubtedly to him is due the honor of having introduced an easy, certain and practical form of treatment, which already has proved a boon to many a patient suffering from what was till recently pronounced an incurable disease.

Etiology.—Very much has yet to be learned regarding the cause of this disease. In several cases recorded, sudden fright or shock has been the supposed origin of it. In the case I am at present treating, and of which I will give full particulars later on, the beginning is very clearly traced to shock and cold combined, stopping perspiration and the menstrual flow. In many parts of the globe it is quite prevalent; such is the case in the east of Scotland, but whether it is caused by some endemic, telluric or climatic condition, it is as yet impossible to decide. Some nervous condition might underlie the disease, interfering with the innervation of the gland. It is very necessary that we should look to the great nervous system, to account for the beginning of many diseases not strictly of nervous origin. What conditions are necessary to cause the whole system to be permeated with mucin? What is the active principle of the thyroid which has the power in it to prevent this untoward condition noticed in myxedema? Such are some of the questions which must be solved, sooner or later, so that we may have a clearer understanding regarding the mysterious disease.

The malady shows us plainly that the whole body is a unity and must work well together to have what is called "health." The body is a chemical laboratory of so complicated and subtle a nature that the deficiency or superabundance of any of its substances which are formed and decomposed every minute, may cause disease, pain or death.

Pathology.—Dr. Greenfield, Professor of Pathology in the University of Edinburgh, was, when pathologist at St. Thomas' Hospital, London, the first to make a postmortem examination of a person who had died of myxedema. It was the case that enabled Dr. Ord to name this hitherto nameless disease. He found that the thyroid was atrophied and considered that this was the primary, most essential fact to be noticed. The functions, then as now, of the gland, were very obscure—but there was a faint idea that it had something to do with the metabolic changes of the nutritive fluids, and that it had some relation to the elaboration of mucin. Dr. Greenfield suggests that it secreted a material of the nature of a ferment, which rapidly passed into the blood and stimulated the secretion of the skin glands, and in some way acted upon the heart. In sporadic cretenism the gland might be almost absent. Again, on the other hand, in exophthalmic goitre there was an exactly opposite condition, namely, an enormous increase in the secreting structure of the thyroid and also of the colloid material in the spaces of the gland. In ordinary crystic goitre, however, associated with cretenism, there was an enormous increase in its substance. Dr. Greenfield, reasoning from these facts, thinks that too great importance ought not to be attached to the morbid appearances of the thyroid in myxedema, or put out of our minds other considerations in relation to its functions. He thinks that a crucial test might be made by feeding a healthy person with thyroids and noticing if conditions analogous to those in exophthalmic goitre were produced. In myxedema, the sweat-glands and sebaceous glands acted defectively, and later atrophied, together with other parts of the skin. The lymph tended to accumulate and stagnate. Myxedematous patients show a marked proclivity to tuberculosis, but at the same time the tubercular process is largely modified. In five cases seen by Dr. Greenfield, death resulted from tuberculosis. There was a great power of repair in myxedema. Microscopically examined, the thyroid showed an advanced condition of atrophy with fibrous overgrowth; sometimes all gland tissue disappears. In one case recorded, there was lymphoid infiltration. There were changes in the epithelium, also in the arteries similar to those found in all chronic interstitial inflammations. There were changes in the hair follicles and in all the glandular elements. The epidermis becomes thin. There is often a deposit of pigment in the skin. The edema owes its character to its being more deeply situated than in ordinary anasarca.

The edema in the lips and tongue is also more deeply situated. In the tongue, patches are often most marked at a distance of a third of an inch from surface. In the skin, tongue, and other organs there are sometimes areas of dense fibrous overgrowth. The other organs, with the exception of the lungs, in the cases examined by Greenfield, were in a normal condition. In the kidneys there sometimes is a peculiar swelling and pallor due to the presence of a myxomatous degeneration around the arteries at their division, and an extension of a myxomatous and cellular infiltration between the tubules in that position, while the cortex was normal. In the nervous system there were no changes with the exception of indications of chronic neuritis in the peripheral nerves. This, however, may not be due to the disease, as all these changes have been observed in a patient who has died of cirrhosis of the liver.

A very interesting case has been related by Dr. John Thompson, in the *Edinburgh Medical Journal* of May, 1893.

In 1887, an unmarried woman, aged 51 years, applied for treatment to Dr. Thompson. She had all the symptoms of myxedema. The disease had progressed slowly, and seemed to be relieved by thirty minim doses of tincture of jaborandi three times daily. This relieved the dryness of the skin. She, however, suffered from dyspepsia, constipation, piles, chilliness, and a distressing feeling of weakness and disinclination for exertion. In December 1892 she was ordered to take by the mouth a quarter of a sheep's thyroid twice a week. At this time her face was more swollen than it ever had been before, and she had large, fatty tumors in both supra-clavicular regions. Her temperature was 97.5° in the mouth, and pulse 80 per minute. After three doses no change in her condition was noticed, so she was ordered half a thyroid twice a week. Six days after this she had severe angina pains similar to what she had prior to treatment. This was chiefly *after* exertion. The heart-sounds were weak, but otherwise normal. The swelling of features was much diminished. Nitroglycerin, one minim of a one per cent. solution every 4 hours, was ordered. Six days afterwards she felt much relieved, but being very weak was ordered to stay in bed and stop the thyroid. Up to two days prior to this she had had three quarters and three halves of a sheep's thyroid. Five days after this the swelling of her features had entirely gone. Her appetite had left, tongue thickly furred; she complained of nausea and much pain over stomach; perspiration was profuse. Temperature 98.6°, pulse 110. Nitroglycerin stopped. Six days later got out of bed, and nearly fainted. The pain in stomach was severe, and constant inclination to vomit; pulse 108, very feeble, but quite regular. Hydrochloric acid and pepsin ordered. Next day patient was no better; was ordered not to sit up at all. Peptonised milk and whiskey given every three hours.

Two days later pulse and tongue both better. Ordered tincture of digitalis, 10 minims thrice daily. Next day pulse and tongue more nearly normal, but she did not feel better. That evening she sat up while bed was being made, and suddenly fainted and died. Two days afterwards a post-mortem was made. Decomposition had already set in to a considerable extent.

Head. Cerebral arteries atheromatous. Pituitary body enlarged, about the size of a small bean (1x1½cms.) and very firm; its fossa unusually deep. Brain otherwise normal.

Thyroid. Both lobes looked at first sight normal in outline, but were extremely flabby and thin (like collapsed bladders), so that they could scarcely be felt with the finger among the surrounding tissues, even when they had been exposed by dissection.

Thorax. No remains of thymus. Pleurae and lungs normal. Pericardium contained about 1½ oz. of blood-stained fluid. Slight thickening of the mitral valve; otherwise all the valves were normal. The muscular tissue of the wall of the heart was in a state of *extreme* degeneration. It was very pale and brownish in color, and flabby in consistence. In many places it seemed to be largely replaced by fibrous tissue, and in others its place was almost completely taken by fat, owing to advanced atheromatous changes having obstructed the coronary arteries. Numerous soft atheromatous patches in the first part of the aorta.

Abdomen. Peritoneum normal; spleen and kidneys seem normal. Liver much decomposed, fatty, with numerous small, rather dry and firm, yellow areas scattered through its substance. Stomach and bowels not opened; externally, they appear normal. Uterus and ovaries practically normal.

Microscopic Report. Thyroid greatly altered in aspect. The gland structure was replaced by fibrous tissue; no trace of the glandular elements remaining, except at one or two points where loculi resembling the normal spaces were seen; these, however, contained no epithelium. The great mass of the tissue was densely fibrous, with few nuclei, but containing blood-vessels of varying sizes, all of whose coats were thickened, especially the middle and outer, which were studded with nuclei. The lumina of the vessels were in some instances filled with blood; in others, were much reduced in size by the proliferation of their coats, and were empty. There were many cells in the section larger than giant cells, and contained numerous dark nuclei (or cells?).

Heart. Great increase of the connective tissue throughout the organ; at other parts considerable deposit of fat, especially under pericardium. The muscular tissue, which was much separated by the connective tissue, was generally atrophied. The bundles showed distinct transverse striation; the nuclei were small and the whole fibres seemed opalescent. The transverse section showed a remarkable appearance. The centre of the fibre seemed replaced by a yellowish substance, around which the muscular fibre was arranged like the rim of a wheel. The fibre was studded with granules of varying size, some highly refractive. The yellow pigment had no apparent relation to the nucleus.

Skin. The cutis vera, relatively, considerably deeper than the epidermis. The stratum corium was increased, proliferating and desquamating at parts. The retê malpighii was shallow, consisting of but a few layers of cells which did not stain deeply, except at the basement; otherwise the cells were natural. The upper part of the cutis vera showed a layer of dense connective tissue, but the rest of the true skin seemed more open than usual.

Hair. The structures were altered. The sheaths were increased, and contained numerous deeply stained nuclei, especially the outer sheath. It was short and stunted; papilla normal. The sebaceous glands did not show any abnormality. The sweat glands and ducts had their connective tissue increased.

Liver showed chronic venous congestion. The cells were cloudy; otherwise the stroma and vessels and cells showed the usual appearances of the condition.

Kidney showed chronic venous congestion. The increase in the amount of fibrous tissue was considerable. The parenchyma of the organ could not be examined on account of the condition of the epithelium. *Superior* cervical ganglia and vagus presented no noteworthy alteration.

Pituitary body was found distinctly congested, the capillaries being distended; some parts of the gland were normal—others, not so. The lumen of the acini were often occupied by colloid material, and the appearance of the sections was very like that of the thyroid gland at an early stage of development. A certain amount of the cystic formation is normal in the pituitary body, but in this case there was more of it than usual.

Remarks.–I have quoted largely the post mortem appearances as found by the pathologist and microscopist; as it is the only case recorded when a sectio-cadaveris was made after the new treatment had been applied. I think that the cause of death was to be found in the heart-muscle, although the changes brought about by the treatment may have accelerated it. The lesson to be learned from this case is, that we ought to be very particular to diagnose correctly the condition of the heart before commencing the thyroid treatment. We should commence in all cases with a small dose, especially when we suspect fatty heart, and enjoin absolute rest during the time of treatment.

SYMPTOMS. Myxedema comes on slowly and insidiously. It rarely developes rapidly. Inability to perspire, increased susceptibility to cold, a feeling of weariness, aversion to exertion, both of body and mind, and a desire to sit rather than stand or walk, are among the first symptoms of the disease. As the malady advances the features change. The lips get blue and the face becomes puffy. The trunk and limbs likewise enlarge. This swelling differs from dropsical swellings by not pitting on pressure. It is seemingly solid, and has a characteristic resistance when touched. As the disease becomes more fully developed the face gets broad, coarse, round, and bloated-looking, resembling an orange in shape.

The lower lip is much thickened and feels firm, resembling, when touched, a solid piece of india-rubber. The nose becomes broad and flattened, not unlike the nose of the negro. The eyelids, at first sight, strike the observer as those of a person advanced in Bright's disease. The upper lids seem to droop, which gives the impression that the eyes are very small, but at the same time the eyebrows are elevated and the head slightly thrown back; the former is caused by an involuntary contraction of the occipito-frontalis muscle, which nature uses to compensate for the lessening of the field of vision caused by drooping eyelids. To the touch the skin of the lids is soft, and looks like wax and is almost transparent. There is a pink blush on cheeks and nose; at times the pink becomes purple. The skin is of a brownish-yellow appearance, especially when exposed to the atmosphere, with sometimes a mouse-colored patch on the side of face. There is sometimes a dirty-brown encrustation on the scalp—baldness, thin, dry, rough condition of the hairs. The eyebrows generally become thin or disappear altogether. The tongue seems too large for the mouth, interfering greatly with articulation. On examining the inside of the mouth we see an edematous condition of the mucous membrane of cheeks, of the pharynx, larynx, and fauces. Deglutition is difficult and sometimes painful. The hands are broadened and "spade-like". The feet the same, but not so marked. The body is much increased in girth. Sometimes there are elastic swellings above the clavicles. If the disease is far advanced, the thyroid often cannot be detected, but this is not of much significance because it is very difficult to find it by palpation during life; and besides that, it need not be atrophied to cause myxedema, but may be functionally inert by its structure becoming altered and destroyed.

The dirty-brown crusts on the head are very important diagnostic features of the disease, although cases do occur without such being the case. The nails often become dry and brittle. Baldness may or may not appear. Flat moles are often present on the skin.

The expression is stolid, heavy-looking and apathetic. Cerebration, especially speech and movement, is slowly called out. The gait is heavy and clumsy, termed by Dr. Byron Bramwell, "hipopotamus-like". Speech slow, thick, monotonous. There is often a chocking sensation. A myxedematous subject takes a long time to answer a question and is unusually placid, cool and stolid. In some cases the mental deterioration is so great that the patient becomes insane. Sight and hearing are sometimes impaired. Such is the case in the patient I am now attending. The sense of touch is diminished. The temperature of the body is low, 94 to 96°. The morning and evening temperature are usually the same. The daily rises and falls which occur in a healthy person are almost entirely absent. Often in myxedematous patients the temperature does not rise under conditions which tend to elevate it in health (Bramwell). There is slight anemia. The red blood-corpuscles and the hemoglobin are usually moderately diminished in amount.

It is most common in women who have borne large families. Amenorrhea is often present. There is undoubtedly some functional sympathy between the thyroid gland and the sexual organs. I have seen a woman whose thyroid became swollen and painful at each menstrual period, and gradually became normal as the menstrual flow ceased.

The urine is generally normal, but sometimes has albumin. Cirrhosis of the kidney is sometimes present, especially in old patients, hence the albumin; but albuminuria may be caused by the myxedematous condition independent of kidney disease. In proof of this a case has been cited in which the albuminuria entirely disappeared during thyroid feeding.

Diagnosis.—In fully developed myxedema the diagnosis presents no difficulty, but there is difficulty in the early stages. In acromegaly the temperature may be subnormal, also the pulse slower, as in myxedema, but as the disease advances the symptoms widely differ.

In a young person the characteristic blush may be absent. In the early stages the swelling of the face, the slowness of thought, speech and movement are apt to be overlooked as they may be only slightly marked, but the great susceptibility to cold, absence of perspiration, or indeed any moisture on the skin, the enlargement and rubber-like appearance of the lower lip and the dislike to exertion, both mentally and bodily, are almost always present and can be relied upon as a pretty sure proof that the disease is myxedema.

Prognosis.—Until recently the prognosis was bad. Ord said the patient died in from six to twelve years from the commencement of the disease, but now, since Dr. Murray has introduced his subcutaneous injection-of-extract-of-thyroid treatment, the prognosis is decidedly favorable, especially when the heart and kidneys are in an otherwise healthy condition.

At present I am treating a case which seems to me a most typical one and will illustrate very clearly the symptoms and treatment of this strange disease.

Mrs. P., aged 50, came under my observation four years ago, and presented the following symptoms: Face puffed, also eyelids; skin, yellowish-brown; mouse-brown marks on both sides of face; pink blush on cheeks; lips blue and thick —lower lip much everted; hands thick, large, dry and scaly. She said she felt the cold very keenly, and even in summer often wore a fur cape. Could fall asleep at any time, and did not care to exert herself either mentally or physically. The breath was offensive, urine scanty and bowels constipated; she feels a tightness on the chest and desires to take a deep inspiration. Her memory was bad and she could not articulate plainly; complained of pain over the region of the thyroid. Her temperature at times was low (95° F.), and she had not perspired for five years. She also had soft, flat moles on the face and side of the neck. Heart sounds were normal; there was neither sugar nor albumin in the urine. Frequently she lost her voice and showed symptoms of strangulation. These symptoms continued, although, under digitalis and tonic treatment, they did not get worse; in fact, she seemed to lose to a certain extent, the swollen condition of her body. She dates the beginning of her illness to a fright she had nine years ago. There was an alarm of fire at night, and while perspiring and menstruating she rushed out of doors thinly clad. From that date both perspiration and menstruation ceased.

Reading in current medical literature of the wonderful discovery made by Dr. Murray, of Newcastle-on-Tyne, I determined to try his treatment. I endeavored to obtain a regular supply of thyroids, and with difficulty made arrangements to have them; but the hot weather setting in, I rather dreaded to use them as directed by Dr. Murray.

For the benefit of those who have not read Dr. Murray's article, I will here give the mode of preparing the extract.

"Remove the gland as soon as possible after the sheep has been killed; remove surrounding fat and connective tissue. Sterilize all the instruments and glass vessels used in the further preparation of the extract, by heat, or thoroughly cleanse with a 1 in 20 solution of carbolic acid. The gland is cut up in a glass dish into small pieces and then placed in a test tube with one cubic centimetre of pure glycerin and one cubic centimetre of a 0.5 per cent. solution of carbolic acid. Close the mouth of the tube with a plug of cotton wool and allow the mixture to stand in a cool place for twenty-four hours. The mixture is then placed in a fine handkerchief, which has previously been placed in boiling water for a few minutes. It is then firmly squeezed by screwing up the handkerchief so as to express as much liquid as possible. By this means, three cubic centimetres (50 minims) of a turbid, pink liquid are obtained. This preparation will keep quite fresh for at least a week. It should be kept in a small bottle with a glass stopper.

"The extract thus obtained may be given in two equal injections (25 minims), during the week, so that at first the patient receives the extract of one sheep's thyroid in the course of a week."

The above was the plan adopted by Dr. Murray, and since then others have given the gland raw as a sandwich; others have partly cooked it. Some give as much as two glands a week; others as little as the eighteenth part of a gland weekly. Allan and Hanbury, of London, prepare what they call "*Thyroidin Tabellae,*" which seem to answer the purpose well. For the reason given above, I did not try the thyroid feeding or the thyroid extract, but applied to Parke, Davis & Co., of Detroit, who supplied me with a preparation of desiccated sheep's thyroid in the form of a powder, fifteen grains being equivalent to an average-sized sheep's thyroid. The action of this has proved most beneficial, as the following details will show.

On May 10th, 1893, the patient's temperature was 96° F.; skin, dry; pulse, 70 per minute and feeble. I ordered five grains of desiccated thyroid to be taken in the morning before breakfast. May 11th, at four P.M., I found the following condition: Temperature, 99° F.; pulse, 88; urine very offensive; alkaline in reaction; quantity, fifteen ounces in twenty-four hours. Ordered five grains to be taken at bed-time. May 12th: Temperature, 98° F.; pulse, 90; had most profuse perspiration during the night—the first time she has perspired for nine years, and felt "bright" and "strong."

The patient had to leave home for a few days, and I did not see her again until the eighteenth. During the interval she had felt better than for years, and the perspiration had continued, although not profuse. The temperature was 97.2° F.; pulse, 64. Ordered five grains of the powder to be taken at bed-time—if she did not feel tired. May 19th: Did not take powder as she felt tired; the moisture on the surface still continues, and there is already a decided change in the features; the bloating has partly subsided. May 20th: Patient took five grains previous morning, also in the evening. The temperature had fallen to 97° F.; pulse, 70; skin moist. May 21st: Temperature 98.5° F.; pulse, 75. May 22nd: Temperature, 99° F.; pulse, 82; patient had taken a five-grain powder the previous night.

A photograph taken at this date shows that the features have already lost a good deal of the characteristic appearance.

May 23: Temperature, 98.6° F.; pulse, 82; she feels very well and cheerful, and articulation is much improved. The urine at this date was normal in color, with no odor, and sufficient in quantity. The hands begin to lose the spade-like shape, and look smaller.

May 24: Temperature, 97.6° F.; pulse, 80. The backs of the hands are much smoother and the scaly appearance is leaving; she feels tired, but is able to be out driving. The hearing is much improved.

May 25: Took a powder the previous night; feels well and is very cheerful and has perspired freely.

May 26: Temperature, 98.4° F.; pulse, 86. Can now articulate perfectly; there is no thickness of speech, and the blueness of the lips is almost absent; appetite is good.

May 27 and 28: Patient continues to feel well, and had taken quite a walk to an entertainment, staying late and feeling none the worse for it.

May 29: Had two powders yesterday and one this morning. Felt tired and weary, and the powders were stopped for forty-eight hours. She is alarmed at the rapid rate she is becoming thin.

June 1: Patient took five grains of the powder this morning and feels weak. Pulse 88 and irregular; temperature, 98° F. Evidently the powder was having a toxic effect, so again stopped them and ordered gr. 1-100 digitaline. Patient complains of pain on the nape of the neck; also on right tempo-parietal region; she experiences a sense of weight in both hips, with difficulty in raising the legs to go up stairs. Passed urine twice during the night, which she has not done for years. Skin naturally moist. She is much thinner in body, hands, arms, and face; can make first finger and thumb meet around the wrist, something she has not been able to do for several years.

June 3: Temperature, 97° F.; pulse, 85; skin moist. Ordered a five grain powder to be taken next morning.

June 5: Temperature, 99° F.; pulse, 84; felt in good spirits; not tired, but "shaky" when walking.

June 6: Temperature, 98.4° F.; pulse, 90. Felt very well; got up early and was walking round the garden.

June 8: During yesterday and to-day, had done more about the house and outside than she had for years.

June 9: Photo taken to-day showed a marked improvement. Temperature, 98.4° F.; pulse, 85.

June 10: Temperature, 98.4° F.; pulse, 85; very bright and cheerful. Took five grains of the powder this morning.

June 12: Temperature, 98.4° F.; pulse, 90; feels very well; had been up since six A.M., and in the garden; also had a long drive, but did not feel fatigued. Took five grains of the powder last night.

June 14: Patient's hearing is now quite restored; temperature, 98.4° F.; pulse, 80.

June 16: Took a five-grain powder last night. The flattened mole on right temple is greatly diminished—not so much in circumference as in prominence.

June 18: Quite astonished her family by leading the singing of hymns and playing the accompaniment herself. Her voice and articulation seemed quite restored to their normal condition, after being much disordered for eight or nine years.

June 19: Took five grains of the powder last night; feels in excellent health. Temperature, 99° F.; pulse, 80. Feels the heat rather oppressive; skin moist.

June 21: Temperature, 98.4° F.; pulse, 80. The grayish-green scurf on scalp has now almost disappeared. The hair feels much softer; the moles are smaller; the urine has been normal in every respect since the 19th of May. On the latter date the patient's waist was found to be seven inches less in circumference than on May 10th.

Remarks.—Up to the present date (June 21, 1893) 55 grains, equal to three and two-thirds sheep's thyroids have been taken, and the patient has improved far beyond the most sanguine expectations. She leaves now for the seaside with instructions to take one powder of five grains once a week and rest for twenty-four hours after taking it. In this case, as in most of those I have seen reported, the first dose caused the most perspiration and the greatest rise in temperature.

As to the permanence of the relief, I cannot venture an opinion. Sufficient time has not elapsed since the discovery of the treatment to warrant anyone to prophecy the ultimate result; but as the case so quickly and thoroughly responded to the treatment, we may hope that the functions of the gland were only temporarily suspended, and there is still another human being grateful to Dr. Murray for his very wonderful discovery.

I will now in conclusion endeavor to give a summary of the most important and interesting features of fifty-eight cases. the reports of which I have collected from different medical journals. The average age when advice was sought and thyroid treatment commenced, was 45 years. The oldest patient was sixty-four, and the youngest seven years. There were fifty-four females and four males. Three of the cases treated were said to be congenital. Average duration of disease when treatment was commenced, was almost seven years. Thirty-three cases were treated by subcutaneous injection of thyroid extract; of these, only six had no unpleasant symptoms. The remaining twenty-seven had either abscesses, faintings (the most prevalent), malaise, epileptiform convulsions, headache, pains in limbs or back, nausea, giddiness, or local inflammations, but none of an alarming nature. The extract used was either that of Dr. Murray, or that prepared by Brady and Martin, Newcastle-on-Tyne, of which ninety minims correspond to one sheep's thyroid. The doses ranged from $^1/_{120}$th of a thyroid daily to two-thirds of a gland during the same period. The remaining twenty cases were treated by the internal administration, either of the extract prepared according to Murray, or that of Brady and Martin, or by the desiccated powder of Parke, Davis & Co., of Detroit, or by eating the gland raw or partly cooked. By this latter method, the only unpleasant effects were fainting, slight pains in the chest and back of neck, or a feeling of languor. Under both plans of treatment the improvement was equally well marked, but as a rule, the hypodermatic method responded more quickly.

Only one death while under treatment was recorded, and that was from fatty heart. The dose ranged from five minims of an extract (equivalent to one-eighteenth of a thyroid) to two thyroids daily. Not one case of failure to relieve has been recorded in the fifty-eight cases here collected. True, some have relapsed after the treatment had been stopped for seveeral weeks, but when re-commenced the beneficial effects were again produced. One of the cases reported was that of a woman aged forty-three, who suffered from insanity, at times of a violent character; at other times her mental condition was one of exaltation. After four injections her demeanor was quieter; and after six injections the swelling began to disappear. At the end of two months her mental condition was almost normal. Grafting of thyroid was performed with much benefit after injection, in the congenital cases.

Time must elapse before we can be certain that the beneficial effects will be permanent. If the gland is destroyed, it stands to reason that no treatment will restore it, and the medicine must be continued indefinitely ; but if its function is only temporarily impaired, the treatment may do much to aid it in regaining its normal condition.

This discovery, whether it absolutely cures, or only prolongs life and diminishes suffering, must be placed in the fore-front of the many useful discoveries of the nineteenth century. Following in the wake of the thyroid treatment in myxedema, we will soon see extracts of the kidney for Bright's disease, or the internal secretion of the supra-renal capsules for Addison's disease, etc., etc.

Note.—Since writing the above I learn that a Dr. Ireland, of Scotland, when recently reading about myxedema recalled a case which came under his treatment in 1854, and which proved fatal one year after he first saw it. Dr. Ireland says he distinctly recalls all the symptoms peculiar to this disease.

83 Warburton Ave., Yonkers, N. Y.

LONDON'S SMOKE.—The *London Lancet* is authority for the statement that an English inventor has at last found an effective remedy for the smoke nuisance in large cities. A public trial of the invention was most satisfactory. The effect of the system is to economize fuel, while the production of soot and smoke is practically abolished. Describing the invention the *Lancet* says:

By an ingenious device the chimney is placed at the bottom instead of at the top of the fire. The air is admitted downward through the fire by a mechanical arrangement, and the products of combination, instead of passing unconsumed, as in the case of ordinary fires, through the chimney into the outer air, are passed through the hottest part of the fire, and the smoke and gases are practically consumed. A turn of a lever is all that is needed to accomplish this result.

DR. McLAUGHLIN'S "PHYSICAL THEORY" OF FERMENTATION, INFECTION, ETC.

Second Paper.

By Thomas W. Poole, M. D.,
M. R. C. S. Ont.; Fellow of the American Electro-Therapeutic Association.

As a preliminary to the presentation of "The Physical Theory" our author criticises adversely the theory of fermentation and infection now accepted, with which Pasteur's name is intimately associated. In doing this, he seems to have misapprehended the true scope of that theory, or at least he has failed to present the full facts regarding it.

He says, "If, as claimed by Pasteur, yeast-cells cannot attain their full development, morphological and physiological, except they obtain the oxygen which they require for their growth and multiplication from organic molecules, then a yeast-cell could not thrive in grape juice, nor in brewer's wort, unless it could obtain the oxygen which it needs for its growth from the sugar molecules which these fluids contain. Pasteur, in fact, claims that the yeast fungus is anærobic in its habit, that is, that it cannot receive oxygen from water or air, and cannot thrive in the presence of air or pure oxygen; it must, therefore, get the oxygen which it needs from the breaking down of organic molecules, for example, the sugar molecules" (p. 37).

And then he proceeds to show, that, as a matter of fact, the yeast-cells are not anærobic, and can produce their characteristic effects otherwise than Pasteur has stated. It is noticeable that in his statement no author is quoted, and no reference is made in support of this version of Pasteur's theory; and although it cannot be said that his statement of the case is wholly false, it has the demerit of being only a half truth, and as such, is quite misleading, and does injustice to the theory which he has set himself to refute.

The following quotations from recognized authorities, will, I think, place this theory fairly before the reader. De Bary, in his Lectures on Bacteria (2nd edition), says:—"Oxygen is not equally necessary in all cases. Two extremes are distinguished in Pasteur's terminology, as ærobia and anærobia. The first requires an abundance of air containing oxygen, as well as a good supply of nutrient substances for luxurious vegetation and growth... the other kind does well on good food without oxygen......Intermediate cases, however, are found between the two extremes,......and according to Nencki Nagæli and others, bacteria which excite fermentation, like the sprouting fungus, which gives rise to alcoholic fermentation, grow luxuriously without oxygen [that is, without atmospheric air], when they are in a fluid capable of fermentation with them. If these forms are placed in a less favorable nutrient fluid in which they cannot incite fermentation, they will not grow without a supply of oxygen [from the air]" (p. 54).

Tyndall, in treating of "the action of the yeast plant under different conditions," says, "let it be sown in a fermentable liquid, which is supplied with plenty of pure air, the plant will flourish, and produce large quantities of carbonic acid gas,......but we hardly find a trace of alcohol. The yeast has grown and flourished, but it has almost ceased to be a ferment." When confined in a close vessel "with a single small aperture open to the air, through which it is observed not to imbibe oxygen, but to pour forth carbonic acid, it may be made to "display its characteristic quality." Here "the small quantity of atmospheric air dissolved in the wort and overlying it, would be totally incompetent to supply the necessary oxygen. In no other way can the yeast-plant obtain the gas necessary for its respiration than by wrenching it from the surrounding substances, in which the oxygen exists, not free, but in a state of combination." "As defined by Pasteur fermentation is life without air."

"But here the knowledge of that thorough investigator comes to our aid to warn us against possible error. It is not, he says, all yeast-cells that can thus live without air and provoke fermentation. They must be young cells, which have caught their vegetative vigor from contact with free oxygen. But once possessed of this vigor, the yeast, he alleges, may be transplanted into a saccharine infusion absolutely purged of air, where it will continue to live, at the expense of the oxygen, carbon, and other constituents of the infusion. Under these new conditions of its life *as a plant*, it will be by no means so vigorous as when it had a supply of free oxygen, but *as a ferment*, it will be indefinitely greater." (The Floating Matter of the Air. Fermentation, p. 246.)

It is, perhaps, worth adding, that it has been fully proved by Pasteur, Lechartier and Bellamy, that not only yeast, but "the living cells of fruit" will cause fermentation "by extracting oxygen from the saccharine juices around them, after air had been denied them." Moreover, "when the cells of fruit and yeast were destroyed, by bruising, it was found that with the destruction of the organism, though its chemical constituents remained, the power to act as a ferment totally disappeared." "The fermentation was the correlative of a vital act and it ceased when life was extinguished." (*Ib.* p. 250.)

From this, it will be apparent, I think, that the objections urged against Pasteur's theory have not the weight which their author assigned them; and that as presented in his book they are deceptive and misleading.

Our author objects to "the enzyme theory," which he says "claims that all ferments secrete enzymes as the yeast-cell does 'invertin,' and that these unorganized ferments are the true agencies of fermentation" (p. 42). No authority or reference is given for this definition, and De Bary and Dr. L. Brunton give a very different account of the production of enzymes, or unorganized ferments, of which pepsin, trypsin, ptyalin, etc. are examples. It is, therefore, unnecessary to follow him in his adverse criticism of "the enzyme theory."

The fact presented above, that when the yeast-cells grew most luxuriantly there was the least fermentation and, *vice versa*, tells strongly in favor of Pasteur's theory, and proportionately so against the physical theory, because an increased development of the yeast-cells ought to have all the more effectually "bombarded" the sugar molecules, and produced a larger quantity of alcohol, whereas the reverse was the case. On the other hand, the exclusion of atmospheric air, compelling the yeast-cells to work harder to procure the needed oxygen, would necessarily result in the disintegration of a larger number of sugar molecules and the production of more alcohol, as was actually the case.

The following additional facts seem equally unfavorable to the physical theory. De Bary, in his Lectures on Bacteria, already quoted, says:—"Since the vegetation of organisms sets up fermentation, the substratum in which the fermentation takes place must contain all the nutrient substances necessary for the process of vegetation. A pure saccharine solution, for example, does not ferment if a small quantity of fermentation-exciting fungi or bacteria, also in a pure state, is introduced into it. The sugar, as we have seen, is a good nutrient material for these organisms, but it only supplies the necessary amount of carbon, the elements of water and free oxygen, and is, therefore, imperfect as a food. It is only when the compounds which supply the nitrogen mentioned above, and the ash constituents are added to the solution, that it is rendered capable of fermentation; and fermentation commences as soon as the conditions favorable to vegetation are secured." (p. 67.)

Now, if the physical theory were true, what is there to prevent the mutual vibrations of the yeast-cells and sugar molecules from "bombarding" each other?

The atoms and molecules are all in readiness, and it ought not to have been necessary for them to wait until the conditions favorable for vegetable life were superadded. Certainly, we have here a further proof of the truth of the vitalistic theory, as it is sometimes called.

Our author claims that Pasteur's "plausible theory of infection completely breaks down under the following conditions:" "The bacilli of diphtheria and tetanus are strictly ærobic in habit, obtain their oxygen from the air and cannot take it from organic molecules." Moreover "they are strictly confined to the surfaces of the body, and when inoculated pass but a short distance from the place of introduction. . . . . Pasteur's theory cannot explain how these bacteria cause infection . . . . this objection is fatal to Pasteur's theory." (p. 159.)

Let us see. This objection consists of two parts; first, that the bacteria mentioned cannot take their oxygen from the organic molecules. This is similar to the objection made in reference to the yeast-cell in Pasteur's theory, and has already been sufficiently met in the reply given above to that objection. Bacteria, like yeast-cells, have large powers of accommodating themselves to their environment. Besides, when the surface molecules are rendered toxic, what is to prevent infection of the deeper structures through the lymph and blood channels?

The second part of the objection rests on whether the bacteria mentioned can gain access to the organic molecules. If they cannot, then the objection is as fatal to the physical theory as to Pasteur's, since on that theory, contact and bombardment are necessary to disruption of the albuminoids. If the organic molecules can be reached in one case, they can in the other, and infection produced. The objection, therefore, has no force.

Again we are told that "this hypothesis can give no satisfactory explanation of why bacteria affect the organism differently." Perhaps the explanation may be found among the reasons given for the different effects produced under the physical theory, viz.: "different classes of bacteria," and "the great diversity of the structure of closely allied albumens etc., formed in the tissues of the body."

It is noticeable that the author of this book has not always been careful as to the use of quotation points, and of the credit properly due to the authors of whose labors he has availed himself. Lengthy paragraphs, amounting together to whole pages, have thus been incorporated into the text without acknowledgment.

The author has displayed a great deal of research and has presented with much ability lengthy chapters on immunity and kindred topics, which are interesting and instructive reading.

Into the questions thus discussed, interspersed as they are with "serious" and "fatal" objections to the presently accepted views on this subject, it would be impossible to follow him at present. Nor is it necessary to do so until "the physical theory" presents stronger claims to acceptance than as yet appear.

Lindsay, Ontario, Canada.

GOLD AND MANGANESE IN TUBERCULOSIS.

By Oscar H. Merrill, M. D.

Widespread interest having been excited by some recent publications on the treatment of tuberculosis by hypodermatic injections of gold and manganese, some further details are here given at the request of the Editor. The injection fluid consists of chloride of gold and sodium, and iodide of manganese dissolved in pure glycerin, each drop containing one fiftieth grain of the combined salts.

As absolute purity of the materials is essential, and as some chemical skill is necessary in preparing the solution, it is a manifest advantage to be able to procure it of reliable chemists.

Dr. John Blake White, who introduced this method of treatment, has therefore made arrangements so that the profession can obtain the solution in New York of C. F. Lord, 482 Seventh Ave. or W. E. Cramer, Park Ave. and 73d St.

The commencing dose for adults is one drop, which may be cautiously increased to two and occasionally to three drops. At the moment of using, each drop should be diluted with five minims of a chemically pure one per cent. solution of carbolic acid; the dilution, for ovious reasons, being made in a small aseptic glass vial.

Probably the best place for administering the injections is the dorsal region, but the writer has, on account of greater convenience, made about two thousand injections in the calf of the leg and in the arm without serious accident.

The hypodermatic needle and the skin should be made clean by the use of alcohol, and very fine needles seem preferable to large ones. Though with proper care an ordinary hypodermic syringe may be employed, it is, no doubt, safer to use the admirable aseptic syringe devised by Dr. White specially for this purpose.

The injections are given once in two days, and cause little or no local irritation if properly administered. Experience has shown that nothing is gained by giving heroic doses, but on the contrary, serious results may follow. Overdosing may cause fever, ptyalism, increased cough, bronchial hemorrhage, jaundice, edema and symptoms resembling iodism; but when given in suitable doses and at proper intervals, there is scarcely any constitutional reaction, so-called.

Two classes of cases seem to be particularly amenable to this method of treatment, viz.: incipient cases without severe symptoms; and moderately acute cases, not too far advanced, in which there is an evening temperature two or three degrees above normal, and in which cough, expectoration, emaciation and night-sweats are beginning to be troublesome. In the former there may be seen after a time increased appetite, followed by a well-marked gain in weight and a restoration to apparent health. In the latter there is sometimes seen an action almost specific. The temperature falls from one to three degrees, the pulse becomes stronger and slower, the pulmonary and bronchial irritation subsides in a remarkable manner, the whole aspect of the case changes, and shortly afterward the patient announces that he weighs ten pounds more then he did. Then it is that the medical observer finds it a little diffiicult not to get enthusiastic.

In this connection it is, perhaps, well to remember that states of mind bordering on enthusiasm are not always conducive to accurate reasoning. If any proof of this statement is needed, it may be found in that great pilgrimmage to Berlin which occurred not long ago, ahd in which some presumably well-trained men took a rather conspicuous part. With regard to gold and manganese, enthusiasm will be distinctly subdued by the fact that not every case is favorably influenced. In some instances, improvement comes slowly and at first with uncertain step. Thus, three patients were discharged apparently cured after being under treatment a year, in whom no satisfactory progress occurred during the first four months. With regard to slowly progressing, chronic phthisis of long standing as well as far advanced cases of a more acute type, it is proper to state that the employment of gold and manganese will be followed by disappointment; while at the same time the most valuable recent addition to the therapeutics of tuberculosis is brought more or less into disrepute.

While there is plenty of proof that this method of treatment is capable of doing good when used alone, it is doubtless wiser to combine with it such other measures, dietetic, hygienic and medical as may be appropriate to each case.

Routine use of this potent combination in miscellaneous cases, especially by uncleanly, careless or injudicious practitioners is liable to lead to disastrous, if not fatal results; while careful individualizing, discrimination, good judgement and persistence will in a certain proportion of cases lead to brillant success and cast an encouraging light upon the dreary path of the physician who doggedly fights for the lives of the tuberculous. In order that apparent recoveries may become permanent it is essential that these patients lead well-regulated lives, and if possible in a suitable climate. With the great army of impecunious, illiterate, untrained consumptives, this desideratum is out of the question. They are apt to celebrate what they call their recovery by a prolonged debauch, by entering upon exhausting labor, or by contracting an ill-advised marriage and passing on their degeneracy to the next generation. Then they return to their physician to be "cured" over again, or go about proclaiming the incurability of tuberculosis.

Those who are interested in this subject should consult *Medical Record* of Dec. 27, 1890; March 21, 1891, and Sept. 10, 1892. Further observations may be found in *Medical News* of Jan. 30, 1892, and April 8, 1893.

Corinna, Maine.

SYNOPSIS OF FRENCH THERAPEUTICS.

By Thomas Linn, M.D.

Losophan.

Dr. Descottes, in a thesis at Paris Faculty, studies this new product. It is an iodised topical drug prepared by the action of iodine on oxytoluic acid in the presence of an alkali. It contains 78.39 per cent. of iodine.

The author had used it in Dr. Quinquaud's wards at the St. Louis Hospital, Paris, and recommends it by local application (ointments, powder, or solution of 10 to 20 per cent.), for chancroid, syphilitic chancres, eczema, pruritis, prurigo, and simple lichen. In a large number of such cases it produced a constant amelioration and cessation of pain when present.

Oil of Niaouli (Melaleuca Viridiflora).

This product is extracted from a tree found in New Caledonia, and has been used lately in the Bichat Hospital, Paris, by Dr. H. Huchard. It is an essence or essential oil, having an odor something like a mixture of eucalyptus and lavender oils. It is stimulating, diaphoratic and anti-catarrhal. It was found to be useful in rheumatism, some stomach diseases, kidney and bladder troubles, as well as all the catarrhs of the bronchial tubes, and in phthisis. It may be used by hypodermatic injection, or given in capsules in doses of three or four grains, six to eight a day. Dr. Huchard, who had been injecting camphor solutions in phthisis, thinks its action is similar to camphor, which it seems to contain.

Boric Acid.

There seems to be a tendency to use more and more borax *internally.* In all bladder troubles, ten grains of the powder is given several times a day. In cystitis it certainly produces good results. Tortchinsky has tried it in 240 cases of typhoid fever during an epidemic, and reports 231 cases of success; 10 to 15 grains were given, and in the first three to five days the fever and diarrhea diminished, tympanitis almost disappeared, and the stools became normal in character.

As soon as this effect was produced the boric acid was discontinued and tonics given. In the later stages of the disease quinine was added to the boric acid, when there were any cerebral symptoms.

Essential Oils as Antiseptics.

Dr. Lucas-Championniére has been trying, in the surgical wards at St. Louis Hospital, to get rid of the bad smelling antiseptic powders, such as iodoform, etc. He first used essence of cinnamon, which he found equal to corrosive sublimate solutions, but irritating to the skin, like so many of these oils. It was also insoluble, but on mixing it with *retinol,* it was found to be soluble and not irritating.

Cinnamol, or rectified cinnamon oil, was then used mixed with the retinol, or naphtolate of soda, spread on borated lint. In quite a long series of open wounds where drains were used, it was quite successful, while on different tumors the results were excellent. Oils of geranium, verbena, and thyme, in half per cent. solutions, were also tried, with about the same results. It is probable that almost, if not quite, all the essential oils are excellent antiseptics, equal if not superior to iodoform and the other bad smelling antiseptics.

Tattooing the Record of Treatment.

Dr. Gayet, of Lyons, having done a successful operation on a man for an aneurism of arterio-venous character of the internal carotid, and wishing to know what nature would do with it and its final results to science, paid the patient to allow him to have tattooed on his arm these words: "Arterio-venous aneurism of internal carotid cured by operation on this man. Please to make post mortem." In this way some one will see the results. If this was constantly done certainly good results would be found for future generations of surgeons and patients.

Treatment of Local Tubercular Lesions.

Dr. Jeannel, speaking of the application of heat in these cases by Felizet's method by thermo-cautery, or by Verneuil's plan with an oven, says that the heat does not penetrate enough, and he has applied *boiling water* directly to the part, thus saving lately four patient's limbs that were designated for amputation. He opens freely any cold abscess and then puts cold compresses around the wound, when he plunges into it a large wad of cotton that has been first put into boiling *salt* water, thus giving a heat of about 220° F. After five or six of such applications, one per day, the bacilli seem to be destroyed and the patient cured.

Raising Babies in Bran.

Professor Hue, of Rouen, calls attention to this method, which is a very ancient one in certain parts of France, but not much spoken of in books on such subjects; yet it deserves more consideration than has been given to it.

Any old cradle will do to practice the method; over its opening a very strong cloth is nailed, allowing it to bag a little into the body of the cradle, and in this hollow formed the bran is placed. It should not be too fine, and that coming from wheat is the best. This is sifted, to get the coarsest part of it for use, and it is then given to any baker who will put it into his oven, where it is raised to a heat enough to sterilise it. About thirty to forty quarts are used at a time. The child is placed on it without a diaper, and allowed full freedom of movement. Its dejections are easily removed and they are without the slightest smell. Some bran is added each time. The baby is lightly dressed and covered with a small sheepskin. The pillow is of horse-hair. The bran may stick to it a little which calls for a daily bath as is needed in any case.

The method presents the advantages of regular warm temperature, cleanliness, antisepsy, no smell, dryness, and economy.

Treatment of Facial Erysipelas.

Dr. Juhel-Renoy studies this question at great length. The result of his investigations is that ichthyol is the best thing for it added to compression. At first, like Unna, he used a varnish of this kind: Ichthyol, 25 parts; acid carbolic, 22.5; starch, 50; and water, 22.5 parts. This acted very well, but searching for better, he found that a substance he calls "*Ichthyol Traumaticine*" was best of all. It is made by dissolving gutta-percha in chloroform and then mixing it with the ichthyol. The preparation gives mechanical compression added to the local effect of the ichthyol. It was applied well around the outer limits of the erysipelas, and controlled the malady in every case it was used.

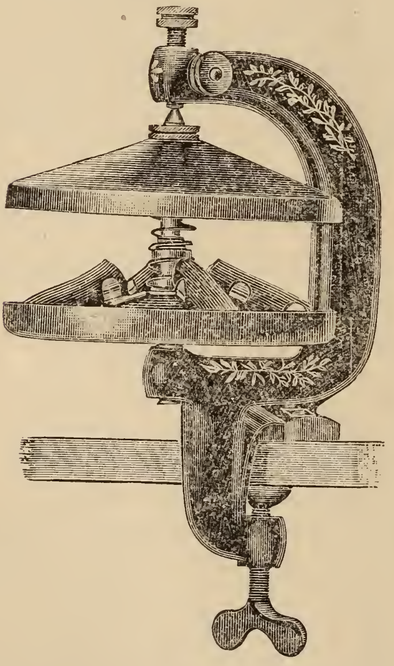
Dr. Ferrand uses an ether solution of aristol (10 per cent.); and Professor Hayem had recommended a mixture of alcohol and carbolic acid, but this last caused pigmentation of the face.

THE BICHLORATE OF EUCALYPTINE.

This is a new crystallized product, obtained by the action of hydrochloric acid on a pure essence* of eucalyptus. Dr. Lully, in a recent Paris thesis on its use, says it is not toxic and that it is a powerful expectorant, moderating the secretion in chronic bronchitis. It was also found useful in the infections of the intestines having anti-diarrhea and antiseptic properties superior to that of eucalyptol.

A "CENTRIFUGAL DECANTER."

This name has been given to a new form of Professor Gærtner's apparatus. It has a clinical as well as a laboratory use and we send a description of it. Any liquid holding in suspension certain products, such as blood, etc., can be separated very quickly in this machine. For instance, it is possible to dose the quantity of cream in milk by its use in a moment, or separate saliva from other liquids, or urine that contains figured elements, while blood globules, both the red and white, can be very rapidly measured. The apparatus is very small, easy to use by anybody, and extremely rapid in the results it gives.



It is composed of a flat holder, which is like two iron lids coming together as a powder box. Through their centres is a vertical axis, made of a steel rod, which is on pivots attached to the cast frame in which it swings. By the use of a cord pulled by the hand this can be made to run by a centrifugal movement 3000 turns a minute. The liquids which it is desired to separate are placed in small bottles, which are held in the lower lid of the apparatus by small clips or springs. They are sometimes covered with a flannel cloth. The apparatus is made by Gudendag, Paris.

115 Place Centrale, Aix-les-Bains, France.

THE AMERICAN MEDICAL ASSOCIATION.

Special Article.

By W. A. N. DORLAND, M. D.

The annual convention of the American Medical Association—the forty-fourth in the history of that distinguished organization—which was held in Milwaukee, the "Cream City of the West," June 6th to 9th inclusive, is generally conceded to have been one of the most enjoyable in the long record of truly pleasurable gatherings it has been the privilege of the members of the Association to attend. While it is true that the attendance was not altogether equal to that of former occasions, the universal spirit of good-will and professional friendship exhibited, the interest and value of the papers read, the natural charms of the thriving city and its environments, the generous and material hospitality of the citizens and members of the local profession, and the blessing of Providence as manifested in the bestowal of unimpeachable weather, all combined to stamp with success the surroundings of the meeting, and to leave delightful memories with those who were fortunate enough to participate.

While it would no doubt be interesting as well as instructive to enter into the detailed accounts of the doings of the general sessions, or to give a bird's eye-view of the transactions of the several sections, our space must limit us to a short review of but one department of sectional work, namely, that on Practice of Medicine, which was efficiently presided over by the chairman, Dr. Charles G. Stockton, of Buffalo, N. Y., who was ably assisted by Dr. George W. Webster, of Chicago, the secretary. Here a striking illustration was given of the feeling that is becoming very general at the present time: that is, that while the science of medicine is inevitably drifting into specialism, specialists are becoming more and more impressed with the truth that success in their chosen lines of work can only be attained when their special labors are based upon a sound knowledge of the principles of general medicine. At all of the sessions of this section the surgeon and neurologist dropped in to exchange views with the general practitioner on subjects that marked the boundary lines between their respective specialties, and all withdrew from the meetings with the inward consciousness of good imparted and received from the mutual contact on the fields of argument and discussion.

The paper by Dr. Robert H. Babcock, of Chicago, on the Medical Aspect of Empyema, and the discussion upon Appendicitis from the medical and surgical standpoints, were especially interesting, as eliciting the views of noted surgeons and physicians in the animated remarks that ensued. Dr. Babcock especially enlarged upon the important role assumed by micro-organisms in etiology of purulent pleurisy, and endeavored to impress upon his hearers the truth of his assertion that when due to the presence of coccus of pneumonia in the pleuritic effusion, the empyema does not require radical surgical procedures to effect a cure, but will yield promptly and entirely to simple puncture, aspiration and drainage. Only in the graver forms—the pyemic, tubercular, or gangrenous—will it become necessary to excise the ribs or resort to other extreme surgical measures. He laid stress upon the fact, that this was but one instance of the practical value that is resulting from the rapid strides that are being made in the bacteriological laboratories of the world. His paper was favorably received, and his views were supported by Dr. Batcheller, of Milwaukee, and others.

The vexed question as to the proper management of appendicitis, whether by confining one's efforts to meeting the indications by therapeutic measures only or by resorting to an early and complete application of the principles of surgery, received a thorough ventilalion at the hands of a number of distinguished surgeons and physicians. As usual, the advocates of the two sides of the question were strong in their believe in their respective positions, and it remained for each to answer the question according to the dictates of his own conscience. The tendency of the discussion seemed to be somewhat in this line: In those comparatively frequent cases, where the inflammatory symptoms are of but slight intensity, and the attack the initial one, it might be well to endeavor to prevent the spread of the disease by medicinal measures only, while at the same time keeping a sharp lookout for any indication of the formation of pus; should the latter appear, operation is at once indicated. In all cases of repeated and persistent appendicites, surgery alone can effect a cure.

The physicians wisely objected to the administration of purgatives before operation and the exhibition of opiates in any form, claiming that the latter masked the symptoms of the case, and only added to the difficulty of making a correct diagnosis, while the indiscriminate use of purgatives in these cases was little less than criminal. Dr. Price advised operation in every case, for he believes that eventually, after repeated attacks of the disease, the patient must fall into the hands of the surgeon. To avoid the additional risk of these subsequent attacks he believes that immediate operative procedures are justifiable.

An interesting feature of one of the morning sessions, and one also that had a surgical as well as a medical aspect, was the demonstration by Dr. Max Einhorn, of New York City, of his comparatively recent method of gastric exploration, *gastrodiophany*. This method is claimed by its inventor to be of considerable value in diagnosticating disease of the stomach walls, and thus may be of assistance to the surgeon as well as to the physician. Two patients, presumably suffering with gastric disease, were brought before the assembly and with considerable dexterity the gastrodiaphanoscope was introduced into their stomachs successively, the room being temporarily darkened. The organ was outlined in a peculiarly lurid manner upon the abdominal wall, and Dr. Einhorn stated that any undue thickening of the walls of the viscus would be revealed by absence of the transmission of the light at that point. One very perplexing complication in the performance was the marked outlining of the recti muscles. Behind these it was impossible to trace the outlines of the pyloric extremity of the stomach, the seat of the most frequent and gravest form of malignant disease of that organ. This of itself would be an objection to the method, to say nothing of the discomfort that the patient evidently experienced during the necessary manipulations of the illuminator. The actual value of the method remains yet to be proven.

One of the most valuable contributions to the section was the discussion on the Brand method of treating typhoid fever. Dr. Chr. Sihler, of Cleveland, Ohio, who has had over five thousand baths given to patients under his direct supervision, earnestly advocated the adoption of this method in private as well as in hospital practice. He believes that, laying aside the objectionable features of the method (and he admits that there are such), the patients do better under this form of treatment than under any other. He finds that the longer he employs the bath, the less is he called upon to sustain his patients with alcohol. He never begins the bath with a temperature below 88° F., but starting at this point he gradually reduces the temperature of the successive baths until he has reached 68° F., at which temperature he continues. Dr. Anders of Philadelpia, and Dr. W. G. Thompson of New York City, are likewise advocates of this method, the latter claiming, that under its use there is almost a complete absence of the nervous symptoms so common to the disease. While the discussion was kindly received and commanded the close attention of those present, it would appear that intestinal antisepsis and alcoholic stimulation still held a favorable place in the minds of many present. The sentiment was very strong, however, against the use of antipyretic drugs. If they are employed at all, it should be only in small doses and with most careful attention, to avoid collapse or any other of the grave complications attendant upon their use.

To continue this sketch would be to consume too much valuable space. The journals are full of detailed reports well worth reading, and if, by this mere glance at the doings of a single, though very important, section of the great Association, we could stimulate to further reading and study, we should rest contented. Much that is interesting, und much that is valuable and practical is presented in a nutshell in these meetings, and an hour or two spent there is worth scores of hours of solitary reading in the study.

120 South 17th St., Philadelphia.

Fever Annunciator.—An ingenious Frenchman, M. Tavernier, has conceived the idea of producing an automatic fever annunciator to be used in sick-rooms and hospitals. The apparatus consists essentially of a small metallic bulb containing ether sealed with a corrugated cover, an electric circuit is closed which is connected with a bell, the record being made at some distant point. The bulb is to be placed in the patient's axilla, and the physician is thus warned of the rise of temperature when it attains a dangerous elevation.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
4621 FRANKFORD AVE., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world. Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. JULY 15th, 1893. No. 1.

Editorial.

THE FUNCTION OF HOSPITALS AND DISPENSARIES.

Notwithstanding the very large and constantly increasing number of eleemosynary institutions which are at present in operation in this country, it has not occurred to either the managers or their attendants, the physicians, that it is but a question of time when more strict lines will have to be drawn between those who are needy and those who are able to pay. And inasmuch as both the above-named parties are directly interested in the successful conduct of these almsgiving corporations, reform must come solely through the reaction that such methods create among the rank and file of the profession. To say that the present methods, if not arrested or materially modified, are calculated in the end to prove a national calamity, is putting it mild, since it tends to the development of a race of paupers, and no matter what may be the precedents established in foreign countries, this insidious malady should not be permitted to take root in American soil.

While no fault is to be found with the conduct of hospitals as such governmental, state, municipal, denominational, private, or special, the facts relating to their character should be constantly kept in view, and all who are entitled to receive professional service without money should receive it; on the other hand, those who are able to pay, ought to be willing to separate themselves from the pauper element to that extent which will prompt them to secure attention at private or special institutions, paying therefore at the regularly established rates.

PROFESSIONAL POLICY.

From tradition we learn that the trend of professional policy is to do good, help the needy and afflicted; and we learn further that the only strife that should be permitted to exist, should be a friendly rivalry in the relief of suffering. Modern customs, however, seem to point to a material change in professional policy—at least one might so construe it from a careful study of many contributions which appear from time to time in current literature, where the main object seems to be to cover up methods of treatment and mystify the reader with accounts of investigations altogether irrelevant, and for practical purposes utterly useless. In this connection we can point with pride to the record of the AMERICAN THERAPIST during the past year, and this feature is well borne out in the present number which begins the second year's history. The contribution of Dr. PORTEOUS, whom the readers have learned to know so well, is remarkably clear, and withal, practical; and dealing as it does, with a most stubborn malady because of its occult origin, is well calculated to shed a flood of light upon this hitherto intractable disease, at least in respect to treatment.

While the closing section of Dr. POOLE'S paper on "THE PHYSICAL THEORY," together with the reply of Dr. MCLAUGHLIN, are lacking in some respects the practical character of our contributions, viz., that of Dr. BACON, in the June issue on the employment of *kava kava* in gonorrhea, or the summary of Dr. MERRILL in the use of *gold and manganese* in tuberculosis, it is only through discussions of this kind that we can expect to arrive at definite and correct conclusions regarding important questions. Among the aims of a medical journal should be mentioned the gradual extension of the literary horizon, along with the more thorough cultivation of the immediate field. Although not at first apparent, the questions presented have a practical bearing, and will serve a useful purpose as the regular work proceeds.

INTESTINAL INDIGESTION.

Just how many people, or what proportion of those who are on the sick-list from month to month and from year to year, are in this predicament because of the injudicious selection of a dietary, it would be difficult to say; but the the simple fact that quite a large number of practitioners in the principal large cities of the country are overrun with patients who suffer from intestinal indigestion, leads to the inference that this is one of the prime causes of disease—in fact, a variety of diseases of different forms. At one time we hear of some high church dignitary dying from an occult cardiac complication; at another, it is a prominent political "boss," who has some rheumatic trouble in the foot; again, comes the report that a highly esteemed business man, or a member of the learned profession has been retired by his friends to some retreat because of threatened mental disturbance. Now these "accidents" are occurring in all the walks of life—among the poor as well as the rich. Until quite recently, the usual treatment has consisted in the free administration of drugs, but the intelligent and more practical physicians who have compassed the mystery of these cases, seem to rely to a greater extent upon the *vis medicatrix naturæ*, after the removal of the cause which produces the indisposition. In short, they restrict the starchy food-products and supply their patients with concentrated, and nutritious, easily digested nitrogenous food; look after the condition of the natural emunctories, and presto, the patients recover. It seems that a word of warning here should be sufficient.

THE CONTROL OF CHOLERA.

For those who may have been apprehensive of the ravages of cholera in this country it may be worth while to quote from the report of Dr. Walter Kempster, who has recently spent some time abroad as the accredited representative of the United States Government for the study of cholera and the measures to be followed for its prevention.

Dr. Kempster says:

"The prevention of cholera is not a theory, but an absolute scientific certainty. To find out what the European Powers are doing was one of my purposes. Another and most important object was to investigate the commerce by which cholera germs might be imported to this country, to find so far as possible whence and how they might be brought, and what precautions would best prevent their coming. Many sea-port towns were visited for this purpose. I traveled over a large part of Europe, went into Egypt and Turkey, and visited the Ionian Islands. The superior system of the European Powers for dealing with the matter is apparent.

"As an instance of what can be done under the best conditions, there is the history of the epidemic last winter in the insane asylum at Halle. More than 100 cases had broken out when Professor Koch was put in control. The place was reeking with it. He quarantined the buildings absolutely, then struck at the origin of the trouble. In 12 days he turned the asylum inside out, renovated all the draining and water system, and stamped the cholera out with both feet. I had the pleasure of seeing him to do it. Many medical men were there to take advantage of the opportunity for study. It was a fine object lesson.

"The home of the cholera, as everybody knows, is in India. Every seventh year, when the Mohammedans indulge in their pilgrimage to Mecca, a wave of cholera is started abroad which reaches over an important part of the world. No doubt their religious pilgrimages are praiseworthy from their moral point of view, but it is rather hard that the rest of the world, even as far off as America, should be made to suffer the effects of them. Great Britain holds the key to the situation. If she would restrain the pilgrims from coming across the Suez Canal to Mecca, there would be comparatively little danger of a cholera invasion of Europe. But her interests oppose such a solution of the problem. Her supremacy in India is assured only so long as she humors the religious customs of the natives."

In view of the alarming extent to which the disease prevails in Mecca and other sections of the Orient, the above report must prove agreeable intelligence.

SPECIALISTS AND THE GENERAL PRACTITIONER.

Fear exists in the minds of some physicians that the specialists, in time, are liable to usurp the functions of the general practitioner, and with this impression in the fore-ground, they are not so kindly disposed to their special brother as they ought to be, considering that the latter is largely dependent upon the former for much of the information obtainable in regard to recent medicaments. It is not, however, so much that the specialist adopts the ideas of the physician in general practice, but he reads between the lines, and draws his conclusions accordingly. With comparatively few exceptions, the all-around physician controls the field in therapeutics, because he occupies not alone the position of a medical consultant and surgeon, but is to a certain extent a specialist. Therapeutics, medical, surgical, and special, constitutes an immense field, and it is the digging and delving in this territory by the practitioner which makes the specialist so sleek and fat, to put the case figuratively. Even in the conduct of a journal like the AMERICAN THERAPIST, it is remarkable how valuable it might be to the specialist, although really intended for the general practitioner. A journal, therefore, devoted exclusively to therapeutics, is not in any sense a "class" journal, but is in fact a necessity for all, the physician, the medical consultant, and the specialist, since it supplies them with the "sinews of war," thus enabling them to cope successfully with disease and acquire fame and fortune. A single suggestion in another department of this number, relating to the employment of *teucrium scordium* in hemorrhoids, might be turned to profit by every one of the three thousand readers who study its therapeutic merits. In view of this probability, therefore, the Editor solicits reports on the clinical applications of this comparatively new remedy.

EDITORIAL NOTES.

STANDING COMMITTEE ON CHOLERA.—The College of Physicians of Philadelphia has appointed a committee with DR. SHAKESPEARE as president, whose duty it will be to look after the sanitary condition of the city, especially in case cholera is threatened. It will be the aim of this committee to aid and counsel the regular authorities, and endeavor as far as possible to secure the abatement of nuisances; and judging from reports current, the work will prove much grater than was at first anticipated.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The third annual meeting of this organization will be held in Chicago, September, 12, 13 and 14, at Apollo Hall, Central Music Hall, and members of the medical profession are cordially invited to attend. Further information may be obtained by addressing the secretary, DR. MARGARET A. CLEAVES, 68 Madison Ave., New York.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The nineteenth annual meeting of this society will be held in Indianapolis, Indiana, on Wednesday, Thursday and Friday, October 4, 5 and 6, 1893. A general session will be held daily, and in addition there will be three sections, general medicine, general surgery and a section on obstetrics and gynecology. Judging from the announcement of the Secretary, DR. F. C. WOODBURN, of 399 College Ave, Indianapolis, the approaching meeting promisses to be one of the most successful in the history of the association.

Alumni Association of the Medical College of Ohio.—Dr. John Moffett, of Rushville, Indiana, the President of this body, delivered the annual address at the recent closing exercises of the College.

Journal of the American Medical Association.—Upon the reorganization of the Board of Trustees of this Association at the close of the Milwaukee meeting, Dr. J. Culbertson, who has occupied the position of editor and manager of the Journal for the past two years, tendered his resignation. The office has been filled by the election of Dr. John B. Hamilton, who thereupon resigned the position of Trustee to which he had been re-elected for the succeeding term of three years. The Journal, under the management of Dr. Hamilton, promisses to be aggressive and even more popular than before, and we bespeak for the new editor the cordial support of the entire medical profession.

Special Announcement to Subscribers.—The Editor takes this opportunity of announcing the early apperance in the American Therapist of a number of specially interesting and instructive contributions. Dr. Thomas W. Poole, of Lindsay, Ontario, will contribute a series of articles, which promise to be of great practical value. The first of these, entitled, "The Hypothesis of Nervous Interference," will appear in August. It will be followed by a paper entitled, "How 'Inhibition' and 'Interference' May be Dispensed With—A New Theory." The August number will also contain a thoughtful and practical paper, entitled, "The Hypodermatic Syringe and Some of its Uses," by Dr. Thomas H. Manley, of New York, together with an illustrated paper showing the pathalogical changes occurring in the kidneys and liver, following poisoning from cantharides, phosphorus, turpentine and sulphonal, by Professor W. C. Caldwell of Chicago. Dr. Charles P. Noble, of Philadelphia, will contribute a timely paper on "The Treatment of Surgical Shock," and along with these, other practical and suggestive papers are promised.

Correspondence.

ADMINISTRATION OF CANNABIS INDICA.

To the Editor,

Sir:—In looking up an article upon cannabis indica, I find a prescription of yours as follows:

℞. Ext. cannabis indica......gtt. v
Ext. gelsemii..............gtt. x
Pulv. acaciæ,
Aquae, aa q.s., ad.........f℥ iv.

M. Sig. Take a teaspoonful every ten minutes for an hour, then at hourly intervals.

As the full dose is five minims, I thought there might be an error in making *drops* for *grains*. Please answer and oblige,

Very respectfully,
. . . . . . M.D.

Reply.

In order to form a true conception of the remedial properties of any therapeutic agent whose value depends upon its power over nerve structures, it is important that we should take into account the susceptibility of these structures as well as the most likely paths by which the influences of the drug travel. In the case of cannabis indica, for example, the first evidences of physiological action are manifested upon the cerebral centres, but not exactly in the same manner that opium effects these structures. The narcotic action of cannabis indica is not general like that of opium and its preparations. The susceptibility of the cerebral centres to the influence of cannabis is manifested by the drug modifying the terminal filaments of the sensory nerves, by which certain forms of headache are relieved, ovarian and uterine pain subdued; it also tends to assuage abdominal pain, and to allay cough under certain conditions. In suitable cases the action of a reliable preparation can be estimated with a considerable degree of certainty, and when given in the small dose, will usually be fully developed within the first hour, since the natural tendency of derangement of function is to heighten the susceptibility. This is not always the case, however, and it becomes necessary, therefore, to make a distinction in the cases where cannabis is considered. Thus, persons addicted to the use of morphine, or those who have been under the influence of opium, readily take large doses of cannabis, and that, too, without any untoward manifestations, while a frail, anemic woman suffering from dysmenorrhea or migraine will quickly develop constitutional symptoms from the frequent administration of a comparatively small dose.

Aside from the questions relating to its inhibitory action or interference with molecular vibrations (nerve impulses), the writer is of the opinion that these prompt effects are due to the fact that the small and frequent dose enables the medicament to be constantly brought into contact with the protoplasm of the ultimate cells, and by this means a restoration of function is effected. Large doses at longer intervals, while producing greater constitutional effects, do not have the same beneficial action, since the organism is constantly engaged in the work of elimination; and again, all medicaments of an organic nature are readily changed when allowed to remain in the system.—Editor.

INSOLUBILITY OF MERCURIC IODIDE.

To the Editor,

Sir:—Since the publication of your *"Pocket Pharmacy,"* I have often employed the remedies recommended therein in appropriate cases with very gratifying results. I have but one objection, which I wish to communicate to you, hoping that you will give me information on the subject.

You direct often a pill of mercuric iodide to be dissolved in water and given in teaspoonful doses. Now, I always could see a little red powder at the bottom of the vessel, and turned to my books on chemistry (mostly German), and found that HgI_2 was insoluble in water. Fowne's Chemistry, Ed. 1878, the only English chemistry I possess, says, on page 27, "Most metallic iodides are perfectly soluble in water; but lead iodide is very slightly soluble, and the iodides of mercury and silver are quite insoluble." The success you had with the biniodide must, therefore, depend upon your collateral treatment, but I would like to hear if you have any explanation to give.

I am pleased with your therapeutic views as expressed in the American Therapist, and that is my reason for taking the liberty of submitting a criticism to your kind attention. Sincerely yours,

. . . . . . M.D.

Reply.

In the little book* referred to, mercury biniodide is advocated in the form of a trituration, as prescribed in this manner the small particles are held in suspension, when the frequent repetition of the dose produces the desired results. It is only in exceptional cases that collateral treatment is required, since the remedy itself is both an antiseptic and an hepatic stimulant. That a small portion remains at the bottom of the vessel when dispensed in solution is not against, but rather in favor of the drug, showing as it does, that we have not yet reached the minimum dosage. The efficacy of mercurials in the form of triturations, especially the insoluble preparations, is explicable on the grounds just advocated when speaking of cannabis indica. Under the old *regime*, when calomel and the insoluble preparations were given recklessly and indiscriminately, constitutional action was frequently produced before the therapeutic effects were noticeable; but in the use of mercury and cannabis indica, it is hoped no one who reads these lines will find any difficulty in deciding upon this important point. The therapeutic effects of both these drugs may be obtained without in any sense producing what is termed physiological effects; the great difficulty which confronts physicians under the present methods of teaching is, that they make no distinction between therapeutic effects and the incipient toxic symptoms. In other words, they are unable to distinguish the primary action of a drug from the secondary action, and with the exception of opium, perhaps, comparatively few have any true conception of the double action of drugs; but this is far too large a subject to take up in the course of a reply to a short communication. For a more detailed description of the therapeutics of mercurials the reader is referred to the June number of the American Therapist, containing a short article on this subject by the Editor.

---

* The Pocket Pharmacy; D. Appleton & Co., 1892.

A REPLY TO DR. POOLE'S CRITICISM OF MCLAUGLIN'S PHYSICAL THEORY OF FERMENTATION, INFECTION AND IMMUNITY.

To the Editor:

Sir:—The review of McLaughlin's "Physical Theory of Fermentation, Infection and Immunity," by Dr. Thomas W. Poole, in the June issue of the American Therapist, is based on a misconstruction of my statement of this theory. As I believe the Doctors paper springs from an honest misunderstanding of the theory, rather than from a desire to erect false premises for the purpose of knocking them down, I submit the following reply for his information and to correct whatever wrong impressions of this theory his paper may have produced in the minds of the readers of the American Therapist.

The Doctor's first contention is, that a coincidence in crest and trough of the molecular ether-waves of a ferment and fermentable substance (which, I believe, must occur before the first can disrupt the second), is inconsisant with the belief that non-coincidence in crest and trough of a ferment and its products, is the cause of the inhibitory influence which ferment-products exercise over their respective ferments. Coincidence in periodic time of the ether-waves of a ferment and a fermentable substance will then result in a disruption of the less stable substance by the more stable one (according to the physical theory), while a non-coincidence in periodic time of the ferment and its product will result in the waves of one substance antagonizing those of the other. This is the scheme which, the Doctor says, is inconsistent with itself.

Now, it is well known that the products of ferment and pathogenic micro-organisms do inhibit the ferment and pathogenic power of their respective micro-organisms; and, as in the case of vinous fermentation, when its products accumulate in a fermenting solution above a certain per cent., they arrest the fermentation. And it is also known that pathogenic products arrest pathogenic action under the same conditions. The Doctor rejects my explanation of these phenomena as being unsatisfactory and inconsistent with the physical theory itself; and accepts that of Pasteur, I suppose, as he approvingly gives us this within quotation marks: "The reason assigned for this arrest, in both the case of yeast and of bacteria, on Pasteur's theory, now generally accepted, is that the products in both cases become poisonous to the ferments, and so destroy their vitality, or at least, arrest their activity, just as an animal will perish if confined in carbonic acid and other excreta which itself produces" (Brunton).

Now, this statement contains two propositions which, I think, are not only unsatisfactory, but are not true. They are as follows: 1st. The products of ferment and pathogenic micro-organisms are excreta of these organisms; 2nd. These products are toxic or poisonous substances.

My reasons for rejecting both of these propositions have been given at length in my monograph, and cannot be repeated here without asking for more space than the editor would care to give. Suffice it that this explanation requires us to believe that alcohol is an excretion of yeast-cells, a proposition that seems absurd in the light of chemical knowledge that alcohol and other products are represented by the same atoms, and in the same proportion which the destroyed sugar contained, and that yeast-cells can grow, multiply, and flourish without producing a trace of alcohol; certainly a remarkable fact if alcohol is an excretion.

The second proposition is equally at fault. A poison is quite general in its action and tends to destroy life. Such is not the case with the products of fermentation; they do not kill the ferment organisms, but simply inhibit their ferment power. For example, alcohol does not arrest fermentation by destroying the yeast-cells, for these immediately resume work when the alcohol is removed; and this process can be continued, until all the sugar in the fermentable solution is destroyed, by simply removing the alcohol from the solution when it reaches 20 per cent.

I will now give my explanation of these phenomena, as set forth in my monograph, and I claim that it is not violative of physical law, and surely is not, as claimed by Dr. Poole, "inadequate, on the very conditions of the physical theory itself."

When the molecular ether-waves of a ferment coincide in crest and trough with a fermentable substance in solution, the impacts of the former, falling many million times in a second upon the latter (the sugar molecules) will drive these further and further apart until, finally, they will be driven beyond their chemical bonds and the sugar will be disrupted; that is, it will be resolved into its atomic or ultimate molecular condition.

The molecules which are liberated by this action will immediately recombine into ferment products. Chemical analysis has proven that the products contain the same elements, and in the same proportions, that composed the fermentable substances which have been destroyed; these disappear and the products appear in their place. While the ferment micro-organism is conceded to be the active and necessary cause of this conversion, it adds nothing from its own substance to the new compounds.

The ferment products are formed, then, from the molecules of the fermentable substance which is disrupted by the coincident ether-waves of the ferment, this being the most stable of the two substances. Now, there are two factors of equal importance concerned in the reunion of the freed molecules into ferment products. The first is the chemical law which forces the nascent elements into chemical union; the second is the ether-wave influence of the ferment which determines how these elements may combine—certainly not to again form sugar or any substance having similar molecular-waves; this could not occur under the influence of these ferment ether-waves; the same influence which disrupted the sugar would prevent its re-formation. The most probable hypothesis is, that a substance whose molecular ether-waves do not coincide with those of the ferment, is the only kind that could form; the less the waves of the new compound coincide in crest and trough with the ferment, the less will be the power of the latter to disrupt, or, what amounts to the same thing, prevent the forming of the former. But, as a consequence of this condition, a new influence will arise; an antagonism of waves will result from the non-coincident waves of the ferment and its products. As waves of water, or waves of light, or sound, will antagonize and even destroy themselves when crest corresponds to trough, it is believed that non-coincident molecular waves (for example, those, of the ferment and its products) will behave in a similar manner. Coincident waves are, then, disruptive; while non-coincident waves are inhibitory or destructive of each other.

We are now prepared to undertsand why, and how, ferment and pathogenic products inhibit, or, if in sufficient quantity, arrest the action of their respective micro-organisms; it is simply a question of wave interference, as molecular disruption is a question of wave increase or energy.

The striking similarity that is known to exist between the phenomena of fermentation and infection has led many medical observers to believe that this results from a similarity of causation. In fact, the classifications of infectious diseases as "zymotic" is based on a belief that they are fermentative. But the physical is the only theory which even attempts to harmonize these processes and to philosophically explain their respective phenomena. Both are believed to result from molecular ether-wave impacts and interference. Just as the molecular wave-impacts of a ferment micro-organism are believed to disrupt a fermentable substance of coincident waves, so a pathogenic micro-organism can disrupt those albuminoid molecules of the body only whose ether-waves coincide in crest and trough with those of the microbe. And, as the inhibitory properties of ferment-products arise from their ether-waves—which do not coincide with those of the ferment—so the inhibitory properties of pathogenic action are believed to arise from a non-coincidence of ether-waves of pathogenic products with those of the causative microbe. The albuminoids which furnish the principal bulk of the body, especially those of the fluids, are the substances which are converted into tox-albumins by the action of pathogenic bacteria.

Now an albuminoid molecule is massive, complex, and unstable. It is comprised of simpler molecules, and these of many atoms or primary molecules. The nature and number of the atoms, and the grouping of these into simple and complex molecules, determine the chemical and physical properties of the substance. And while the many isomeric conditions of albumin contain the same kind and number of atoms, and, in the main, are uniform in their molecular grouping, it is believed that differences in the latter, which may be slight, are the cause of those differences which characterize the different forms of this substance.

Besides, albumin molecules have lines of weak union, like the lines of cleavage in crystals, along which they are most easily broken. The products of such disruption are often poisonous to the organism; in addition to indol, cresol, skatol, creatine, and uric acid, which are thus formed, it is believed that tox-albumins have also a similar origin.

Now the physical theory teaches that the dynamic energy of a substance arises from its ether-waves, and that these result from those produced by its constituent atoms or primary molecules which are believed to unceasingly move in periods of time that are definite, distinctive, and unvarying; and that atomic vibrations produce ether-waves which are equal to the atomic motions which caused them.

It will be seen that a conflict must then occur between the atomic ether-waves of a substance; coincident waves will be amplified, while non-coicident waves will be lessened or destroyed, until, finally, an adjustment of such waves will occur, and these are really the ether-waves of the substance; that is, the adjusted waves are distinctive of the molecular structure of the substance, and not necessarily of its atomic constituents.

When we now consider the great diversity in the molecular structure of bacteria, and the equal diversity in the molecular structure of albuminoids of the organism, it will be seen why a group of albuminoid molecules, having a similar molecular structure, are susceptible to the dynamic energy of microbes with coincident waves, and immune from the energy of other microbes whose periods do not coincide with those of this group of albuminoids. And, further, why the tox-albumins will vary with the microbe and albuminoid-group concerned.

One other subject connected with action requires notice before leaving this part of our subject. It is this: A pathogenic microbe and those groups of albuminoid molecules which are vulnerable to it, have coincident ether-waves; therefore the products (tox-albumins) which result from the action of these bodies will inhibit both alike. And, as the chemical nature of the product is simpler, and its chemical bonds therefore stronger when the tox-albumin accumulates in the blood in sufficient quantity, its inhibitory or interfering waves will be sufficient to not only antagonize those of the albuminoids, but an amount of this dynamic energy, sufficient to aggressively attack those albuminoids which have thus been disarmed, will be carried over. And, while this wave-influence may not be able to resolve these albuminoids into their primary elements (as these waves do not coincide with the molecular motions of the albuminoids) it is believed that these waves, by attacking the albuminoids at some of their points of weak union, will cause a re-arrangement of their molecular grouping; will, in other words, convert albuminoid molecules which are susceptible to this bacterial influence, into those which are immuned from it, by changing their periods of vibrations.

With this brief survey of that portion of the physical theory which Dr. Poole calls in question, we are prepared to answer his inquiries, and correct his errors.

He says, "This theory fails to explain why the bacteria are uninfluenced by the bombardment of the albuminoids, while later on they succumb to the less intense bombardment of the products." Our answer is, that bacteria are not disrupted by albuminoids because they are more stable in their structure than these bodies. We have never said they (the bacteria) "succumb to the bombardment of the products;" nor, that "the products are less intense in their energy."

"Again, in explanation of why, after the bacteria are inhibited, the toxic products do not continue to excite specific disease, we are told, that the toxic products influence the wave-motions of the adjacent (normal) albuminoids, so as to change without disrupting their molecular grouping..... Here it is assumed that the toxic products and the as yet healthy albuminoids have similar wave-periods, otherwise they could not influence each other, on the physical theory."

My answer to the statements contained in this extract from Dr. Poole's paper is, that, in the first place, I have not used the terms adjacent, normal, or "healthy albuminoids"; and, in the second place, I have never stated that the molecular ether-waves of products and their associated albuminoids are similar (coincident in crest and trough). On the contrary, I claim just the opposite—that they do not coincide, and consequently are inhibitory.

The Doctor then quotes from my monograph as follows: "The energy of a ferment is derived from the construction and motion of its molecules." "The same kind of molecules have the same periods of vibration." And, "the molecular waves of a substance, which gives it its energy, will vary with that of its molecular structure." He claims as a legitimate deduction from these statements "that substances having similar wave-periods have similar molecular constituents, similarly arranged," and brings forward an analysis of bacteria, by Nencki, which make these differ in chemical composition from albuminoids, and says this difference of chemical composition precludes a belief that bacteria and albuminoids can have coincident ether-waves.

I reply to this, that ether-waves of a substance, as already stated, are the result of an adjustment of those of its atoms and primary molecules, and, consequently, the manner of molecular grouping has as much, if not more, to do with the wave-energy of a substance than has its atomic composition. The Doctor's last contention is, that primary molecules do not vibrate in periods of time that are definite and unvarying. He quotes Professor Clerk-Maxwell's "Theory of Heat" to show that molecules collide, rebound, and have their course changed, etc., but he overlooks the important fact, which I state on page 53, that the motions of primary molecules are both interior and translatory. Now, it is the interior motions of molecules that especially concern the physical theory, and not those of translation. Prof. Clerk-Maxwell says, "Molecules exist of various kinds, having their various periods of vibrations, either identical, or so nearly identical that our spectroscope cannot distinguish them. The same kind of molecules, say, that of hydrogen, has the same set of periods of vibration, whether we procure the hydrogen from water, from coal, or from meteoric iron."

The molecular motion of translation, which Dr. Poole refers to, is quite another thing; heat is essentially this mode of motion, and it is this motion of translation, and not the interior motion of molecules, which Professor Maxwell refers to in the quotation brought forward by Dr. Poole.

J. W. McLaughlin, M. D.

Austin, Texas.

OBITUARY.

Dr. James J. Levick, of Philadelphia, died suddenly of cardiac disease, at his home, on Sunday, June 24, 1893, at the age of sixty-eight. Dr. Levick was a member of the Society of Friends, and for upwards of forty years was a prominent figure in medical circles, both as a practitioner and teacher. In early life as well as in later years, he was connected with a number of the different hospitals of the city, and had contributed a number of practical papers to current medical literature. His ideas in regard to medical treatment were conservative, but he was always ready to consider the claims put forward by others, and consequently was in frequent demand as consultant in difficult and occult medical cases, as his tastes did not tend in the direction of surgery. Dr. Levick was a member of the College of Physicians of Philadelphia, of the American Medical Association, of the Pennsylvania State Medical Society, and of the Philadelphia County Medical Society, from their early history. He was also a member of the Academy of Natural Sciences of Philadelphia, and of the Historical Society, and at the time of his death, had just completed a volume, entitled "The Early Welsh Quakers and Their Emigration to Pennsylvania." His loss will be keenly felt by the medical profession of this city, and by his many friends and patrons scattered throughout the country.

Dr. John C. Hall, Superintendent of the Friend's Asylum for the Insane, Frankford, Philadelphia, died suddenly on the afternoon of Tuesday, July 4, 1893, at the age of fifty years, from cardiac complications in connection with an attack of cholera morbus. Dr. Hall had been Superintendent of the Friend's Asylum for a period of fifteen years, and during his incumbency the institution had attained a wide reputation for the success which attended the treatment of the insane placed under his charge. During these years the institution has prospered in a most remarkable manner, and now ranks with the best in the country. No doubt, a considerable portion of the successful working of the institution has been due to the active co-operation of Mrs. Hall, who has exhausted every project for the welfare of the patients in the way of providing them with suitable entertainment and work, so that the Friend's Asylum partakes of the character of an industrial establishment. Dr. Hall was careful, conservative, and conscientious in the treatment of all his patients, and as far as possible gave each his personal attention. He was a member of the American Medical Association, of the Pennsylvania State Medical Society, and of the Philadelphia County Medical Society; he was also a member of the College of Physicians of Philadelphia and of the National Society of Superintendents of Insane Asylums, and his loss will be mourned by many who had learned to love and respect him for his sterling qualities as a physician and as a friend.

Recent Medicaments.

PHEDURETIN.

Pheduretin, a new phenol derivative, occurs in the form of fine, white, silky, tasteless, acicular crystals; readily soluble in hot, but scarcely so in cold water. Apparently it is quickly dissolved in the gastric fluids, as it is soon found in the blood after ingestion. It possesses distinct diuretic effects, and in a preliminary trial for the relief of migraine, the curative results were astonishing, which, added to its pronounced diuretic action bespeaks for the new remedy a favorable reception. The exact chemical constituents are as yet unknown. The dose ranges from five to fifteen grains twice a day. The drug can be given in the form of capsules.

TEUCRIN.

Ever since Professor Liebreich, of Berlin, showed that the cantharidin compounds produce similar effects to Koch's tuberculin, various experimenters have searched for substances acting in the same manner, and there are certainly a great number of different chemical bodies which, when administered by injection into the animal organism, produce local hyperemia around the remains of chronic inflammatory processes and the site of foreign bodies, as well as an increase of the production of lymph accompanied by so called general symptoms—e. g., tachycardia, fever, etc. Such a "lymphagogue," as it may be called from the experiments made by Professor Heidenhain, of Breslau, has now been found by Professor Mosetig, of Vienna, to exist in the plant called Teucrium scordium, one of the Labiatæ which was officinal many years ago, and which was known even to Dioscorides as possessing an antiseptic action. Mosetig used an aqueous extract prepared from the herb, which he called teucrin, the dose varying up to five grames. When injected subcutaneously in healthy or sick persons, teucrin produces a sudden rise of temperature, reaching 38.5° to 40.0° after four hours and lasting from eight to ten hours. The fever thus produced exhibits the characters of Volkmann's aseptic fever, the patients feel themselves as well as before, the appetite is increased, and the secretions and excretions are not changed. Locally there is only a slight swelling around the puncture; sometimes edema and pain are produced, persisting for twenty-four hours in healthy persons, but in diseased tissues a very active hyperemia is induced, lasting some days, and its effects manifest themselves by changes in the morbid tissue, and even, finally, by the total absorption of the latter. Teucrin injections were employed by Mosetig in cases of cold tuberculous abscesses. Generally three grames of the teucrin were injected near the abscess subcutaneously. Two days after the injection the cold abscess had become a hot one, which was then treated surgically like a common plegmon. Healing took place very rapidly. More than 200 cases have been treated until now by this method by Mosetig Teucrin has also been used in cases of fungous adenitis instead of *curettement*, and has proved very successful. The injections showed a highly absorbent effect when made in the neighborhood of swollen lymph glands. Beneficial effects of teucrin injections have also been found by Dr. Kliegl (Mosetig's assistant) in cases of actinomycosis and lupus. Mosetig believes that the injections of teucrin will prove to be very useful, especially in cases of local tuberculosis of the soft tissues, as caseous infiltrations are destroyed after the injections by the acute inflammation which follows, while more recent tuberculous infiltrations may disappear by being absorbed under the influence of the hyperæmia caused by the injection. —*Quar. Ther. Review*, April, 1893.

(NOTE.—It will be appropriate here to call the attention of the profession to the great value of powdered teucrium scordium in the treatment of certain forms of hemorrhoids. The best results seem to be obtained in those cases characterized by a relaxed condition of the mucous structures, and not unfrequently accompanied by or associated with hepatic derangement, as manifested by irregularity of the bowels and more or less constipation. The patients complain of "irritation," located within the bounds of the sphincter ani, and occasionally there is more or less itching externally. In these cases teucrium scordium in the form of an ointment is curative of the local affection, but constitutional remedies are required to relieve the condition upon which the hemorrhoids depend. Ten grains may be incorporated with lanolin and a sufficient amount of olive oil, and applied once daily by inserting the bolus in a rectal capsule. The same method may also be followed by means of rectal suppositories. —EDITOR.)

Book Notices.

SEXUAL WEAKNESS AND IMPOTENCE, in the Male and Female. By EDWARD MARTIN, A.M., M. D., Surgeon to the Howard Hospital, Professor of Genito-Urinary Surgery, University of Pennsylvania. Paper 12mo., pp. 102. Detroit, Michigan: George S. Davis, 1893. (Price, 25 cents).

The opening pages of this book are occupied with an account of the anatomy and physiology of the male sexual organs. Impotence is then considered under the divisions of organic, psychical and atonic, each of which is interspersed with appropriate illustrative cases. For the treatment of the latter variety, the author praises electricity, and claims that the percentage of cases effected by it is greater than from any other single remedy. In addition to the valuable indications as to treatment, timely and useful hints are given as to the management of the patient. Prostatorrhea, involuntary seminal emissions, and a brief summary of the chief causes of impotence in the female make up the closing chapters. P.

THE HEALTH RESORTS OF EUROPE. A Medical Guide to the Mineral Springs, Climatic, Mountain, and Seaside Health Resorts, Milk, Whey, Grape, Earth, Mud, Sand, and Air Cures of Europe. By THOMAS LINN, M.D., Doctor of Medicine, Faculty of Paris, etc. With a preface by A. E. SANSOM, M.D., F.R.C.P., etc. Cloth 12mo., pp. 330. London: Hirschfeld Brothers, 1893.

To those familiar with the pains-taking care and exactness of the investigations of Dr. Linn, no introduction will be necessary on this side of the Atlantic. The present volume is the outcome of studies undertaken for the purpose of summarizing the therapeutic advantages offered by European spas, and other specific plans of Continental treatment, and is alike valuable to the physician and the better class of patients who frequent these resorts in the pursuit of health and recreation. By way of introduction, some practical hints and advice are given, and, in addition, we are presented with a very complete therapeutic index and dictionary, which is intended to answer the various questions liable to come up when one thinks of making an European pilgrimage. A separate description is added of the various health resorts and cities, by countries, together with a convenient classification of waters. An acceptable addenda will be found in the directory of physicians at the different points, by which means physicians at a distance are enabled to select the physician for the patients which they are sending abroad. The value of the book is enhanced by a copious and well arranged alphabetical index. Messrs. D. Appleton & Co., of New York, announce an early American edition of this excellent work.

ELECTRO-THERAPEUTICS OF NEURASTHENIA. By W. F. ROBINSON, M.D. Paper 12mo., pp. 72. Detroit, Michigan: George S. Davis, 1893. (Price, 25 cents).

The author of this book would have done better had he omitted the introduction. In this he tells us, that in his opinion, neurasthenia is "a pretty clear-cut entity," and again, that "no matter how developed," it must be looked upon as "a morbid entity in itself":—statements which are doubtless true in a metaphysical sense, but hardly so in the ordinary meaning of the term. He further states, that "the fundamental character" and "basis of the disease" is "a lack of reserve force, or nervous bankruptcy." He locates this failure of nerve force in the vaso-motor system, which, "instead of keeping up a steady tonic pressure on the bloodvessels, is constantly lessening and tightening its grip upon them, now in one part of the body, now in another." One naturally expects, in view of this announcement, that special attention will be given to the treatment of this peccant vaso-motor system, but strange to say, it is not again mentioned.

The author does what he charges the vaso-motor nerves with doing, and plays fast and loose with his subject; for now we find that he is uncertain about his former assertion and "the true nature of neurasthenia is still in doubt," and it is "a difficult and involved subject," which indeed is very true.

The question of classification is quickly disposed of, by the two divisions, mild and severe; the chief difference between which, so far as appears here, is the length of time it lasts.—The milder forms lasting, perhaps, a year, and the others from one year to ten, or more.

Of the three forms of electricity, faradization, in the opinion of the author, is of the least value. He begins with static or Franklinic electricity, and subsequently employs the galvanic current; the chief principle of treatment being to get as much electricity as possible into the body so as to produce stimulation while avoiding undue irritation. Each period of treatment, of a month or so, is to alternate with a holiday, and from the frequency with which "a trip" is recommended it evidently forms an important feature in the author's treatment.

It is to be regretted that the author has been unable to lay down any definite rules or guiding principles in conducting this treatment. In fact, in his closing summary, he warns the reader "not to rely on any system or set of rules in this obscure and complicated affection." It is not pleasant to have to criticise adversely. The author, no doubt, has done his best, but I fear the verdict must be, that his book is neither instructive nor encouraging in the use of the potent agent with which it undertakes to deal. P.

The attention of our readers is directed to the very careful and impartial reviews of new books which appear in the current issues of the AMERICAN THERAPIST. The Editor aims to place the books sent him for review in the hands of those who are specially qualified to judge of their character, and all who desire to secure a faithful and succinct account of the practical character of current publications may depend upon the views advanced by our corps of critics as being perfectly reliable; justice being tempered with mercy.

PUBLICATIONS RECEIVED.

Memoir of Elisha Bacon Shapleigh, M.D., of Philadelphia. By JAMES COLLINS, A.M., M.D., of Philadelphia, 1893.

Rest vs. Exercise in the Treatment of Pulmonary Consumption. By THOMAS J. MAYS, M.D., of Philadelphia. Reprint, 1893.

Hydro-naphthol in the Prophylaxis and Treatment of Cholera. Reprint, 1892. By D. D. STEWART, M.D., of Philadelphia.

Treatment of Sacculated Aortic Aneurism by Electrolysis through Introduced Wire. Report of a case. Reprint, 1892. Same author.

The Use of Gold and Manganese in Tuberculosis. By OSCAR H. MERRILL, of Corinna, Maine. Reprint, 1893.

The Recurdescence of Leprosy, and its causation. A Popular Treatise by WILLIAM TEBB. With an appendix. London, 1893.

Leprosy and Vaccination. By WILLIAM TEBB, of London. Reprint, 1893.

The Literature of Sea-sickness. By J. A. IRWIN, M.A., M.D., etc., of New York. Reprint, 1893.

Florida Lands of the Atlantic and Gulf Coast Canal and Okeechobee Land Company. Pamphlet, 1893.

History of a Case of Gunpowder Injuries, to Corneae, Irides, and Lenses with subsequent restoration of vision to almost full acuity. By CHARLES A. OLIVER, M.D., of Philadelphia. Reprint, 1892.

Annual Announcement and Catalogue of the Baltimore Medical College. Session of 1893—94.

Treatment of Suppurating Bubo. By ORVILLE HORWITZ, B.S., M.D., of Philadelphia. Reprint, 1893.

Two Cases of Sterility and Impotence Following the Left Lateral Operation for Stone. By ORVILLE HORWITZ, B.S., M.D., of Philadelphia. Reprint, 1893.

Reunion of a Portion of an Amputated Finger. By ORVILLE HORWITZ, B.S., M.D., of Philadelphia. Reprint, 1892.

The Treatment of Choleraic Diarrhea. By various authors. St. Louis, Mo., 1893.

ERRATA.—Through an oversight on the part of the proof-reader, in the absence of the Editor, a number of exasperating errors crept into the issue for June. The following occurred in DR. POOLE's paper: Page 301, 2d line of 2d paragraph, "on waves" should have read, of waves; p. 303, 1st column 7th line, "immense" should be immune. Same column, 2d paragraph, "important" should be impotent; same column, "B. Anderson" should be B. Sanderson.

An unfortunate error also occurred in the miss-spelling of Hirt (Heirt) in the review of his excellent book published by D. APPLETON & Co.

Miscellany.

An Improved Test-tube.—At Guy's Hospital, London, the authorities are now using an improved test-tube. It differs from the ordinary tube in having an enlargement or bulb at the upper portion, which prevents the contents from boiling over when heat is applied, and has the additional advantage of not spilling the liquid when laid upon a level surface.

Fumes of Lead.—In a large German lead works successful efforts have been made to check the malignant poisoning caused by the escape of lead fumes by connecting all the different fnrnaces with a powerful ventilator. This draws out the fumes by exhaustion and forces them into a tall chimney. Arrangements are also made for purifying the gases from the lead they contain. The effect on the health of the workpeople has been very remarkable. The number of sick days has been reduced to one-sixth of what it was formerly.

Garbage Treatment.—There are two principal methods for the treatment of garbage, viz., incineration and dessication. The value of the former is unquestioned, but there are inducements for investigating the latter plan, since the material resulting from thorough purification may be later employed for fertilizing purposes. The Merz process, now in successful operation at Blissville, L. I., is said to be of this character, and has the added advantage of working automatically. All vegetable and animal matter as collected, is dumped into air-tight tanks, from which it does not escape until completely disinfected by a volatile substance. When removed it is reduced to a pulp, and thoroughly dried, and is said to be free from all foul odors and gases, and is in the form of a merchantable commodity.

Electrical Disinfection. — The practical value of electricity as a disinfectant of sewage has recently been demonstrated by Professor Woolf, the inventor of the system. It is effected by electrolysis and its utility was shown during the early part of this month in the presence of the Commissioner of Public Works and the Health Commissioner of New York city at the town of Brewster, N. Y. For a town of 30,000 inhabitants the plant can be supplied at a cost of $5,000, while the expense of manipulating the sewage will not exceed $4.00 per day. From the reports published in the secular press, it is inferred that a disinfecting fluid is prepared which is conducted into the sewer, and it is said that this fluid will instantly kill the germs of all contagious diseases, including those of cholera, diphtheria, scarlet fever, measles, typhoid and typhus fever.

The utility of this method seems to be dependent upon the presence of ozone, as it is said the disinfected sewage on being submitted to a chemical test shows the presence of a considerable percentage of this substance, which is known to be an active devitalizer of organic matter.

At the same time, the method is said to possess certain disadvantages, inasmuch as putrid meats can be almost instantly restored to their original purity, hence the prospect of being served with such food is not exhilarating.

Cholera Inoculations.—Four hundred persons at Agra, India, have been inoculated with cholera virus by Dr. Haffkine, and no unfavorable results have followed. This experience of the "four hundred" of India suggests that cholera in moderation does no harm; and that it is only the abuse of it that is to be deprecated.

State Supervision of Epileptics.—It should be noted that the prospective Colony for Epileptics in the State of New York, referred to in the March number, has been temporarily abandoned, owing to the action of the Governor, who vetoed the bill on the ground of lack of funds.

At the present time, the State of Ohio is the only one in the Union which has made suitable State provision for the care of epileptic patients. Three years ago the Legislature passed a bill authorizing the selection of a site for an epileptic asylum, and, as a result, the town of Gallipolis was indicated by the committee appointed for the purpose. The erection of buildings was begun in 1891, and several are now nearly completed, when they will be open for the reception of patients. While it is not the sole aim of this institution to attempt cure, everything will be done for the patients that science and skill can command; the main object is to supply them with employment adapted to their condition in order to make them self-supporting and useful members of the community.

Medical Examining Boards in Pennsylvania.—The Boyer Medical Examiner law establishes a Medical Council composed of the Lieutenant Governor, Attorney General, Secretary of Internal Affairs, Superintendent of Public Instruction, President of the State Board of Health and the Presidents of the three State Boards of Medical Examiners provided for by the act. The members of the Council shall receive no salary, except the secretary and treasurer, who shall each receive not over $500 a year. The Council shall supervise the examinations, conducted by the Boards of Examiners, of all applicants for license to practice medicine and surgery, and shall issue licenses to applicants who have presented satisfactory certified copies of licenses from State Boards of Medical Examiners or State Boards of Health of other States, or have successfully passed the examination of one of the Boards of this State. The act goes into effect on March 1, 1894. The three boards, each composed of seven members, shall represent the Medical Society of Pennsylvania, and the Homeopathic and Eclectic Medical Societies of the State. The Governor shall select the members from lists obtained from the secretaries of the societies, and each board shall be composed exclusively of members of one society. Every appointee must be a registered physician in good standing and have practiced medicine or surgery under the laws of this State for not less than ten years. Foreign applicants, who shall have received their degree of medicine after July 1, 1894, must have studied medicine at least three years, including three regular courses of lectures in different years, prior to the granting of the foreign diploma.

A bill has also been passed repealing the law allowing any duly registered graduate of an accredited medical college who has had not less than three years' continuous practice since the date of his diploma, to register, without examination, and obtain a certificate entitling him to carry on a retail drug or apothecary business as proprietor or manager.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,
WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, AUGUST 15th, 1893. No. 2.

Original Articles.

STUDIES IN PATHOLOGY.

POISONING FROM PHOSPHORUS, CANTHARIDES AND TURPENTINE.

By W. C. CALDWELL, M. D.,
Prof. of Materia Medica, and Director Pharmacological Laboratory, College Physicians and Surgeons, Chicago.

The tissues from which the accompanying photographs were made, were prepared for microscopical examination as follows: *Immediately* after the death of the animal, one-fourth inch cubes of the tissues were carefully cut and dropped into Carnoy's solution for fifteen minutes for the purpose of fixing the cells; they were then washed in 95 per cent. alcohol to remove thoroughly all the chloroform and acetic acid, after which they were placed in 95 per cent. alcohol and changed every hour or two until sufficiently hardened. They were then placed in oil of cedar for several hours to remove the alcohol, when they were infiltrated with soft paraffin, and finally imbedded in hard paraffin. They were cut very thin and stained deeply with hematoxylin. Young animals were used, because, in them, intra-cellular changes are more easily produced.

I. LIVER.—*Pnosphorus Poisoning.* (Fig. 1.) Phosphorated oil was given to a young rabbit by the mouth. It lived eight days.

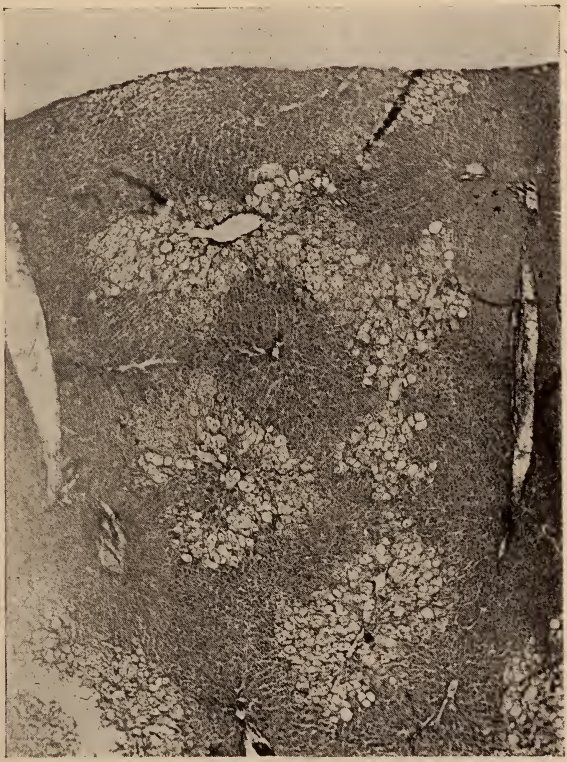


FIG. I. LIVER.—Phosphorus Poisoning.

(1) *Photograph.*—This photograph is made thirty diameters, as that is a convenient size to show the relation of the phosphorus action to the portal canals and hepatic lobules. In the photograph can be seen numerous white spots or spaces around the portal canals, and since the portal canals are between the lobules, the white spaces occupy the peripheral zone of the lobule. The field photographed was selected to show this. As seen near the centre of photograph, one lobule is almost surrounded by these spots. These white spaces are filled with the balsam used in mounting the specimen. The spaces originally were filled with a substance soluble in benzin, probably fat. This was dissolved out by the benzin used to remove the paraffin with which the specimen was

infiltrated and imbedded. The cells towards the centre of the lobule are normal; this was easily seen when the specimen was examined with a higher power.

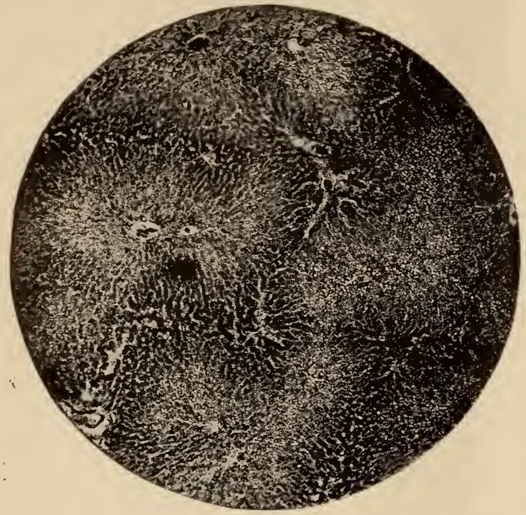


FIG. II. LIVER.—Cantharides Poisoning.

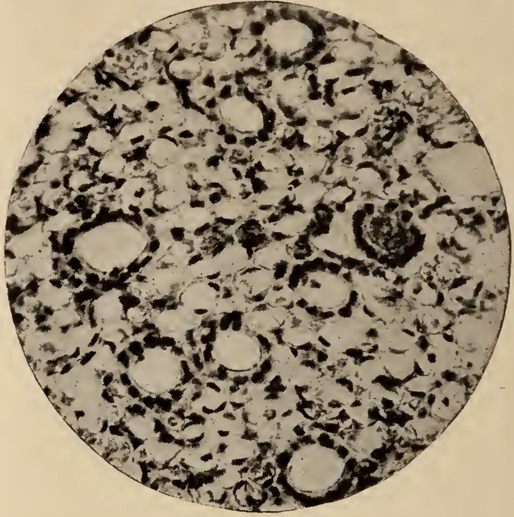


FIG. IV. MEDULLA KIDNEY.—Turpentine Poisoning.

(2) *Pathology.*—After the phosphorus entered the stomach, it passed into the portal circulation and was carried to the liver. As it passed along the portal canals, *between* the hepatic lobules, it osmosed through the vessel-walls and entered the adjacent hepatic cells, where, because of its great affinity for oxygen, there was rapid combustion; but the combustion was incomplete because the supply of oxygen was limited, and, hence, the protoplasm of these cells was partly converted into fat. This is the reason why its action is manifested *around* the portal canals, and not diffuse throughout the whole lobule.

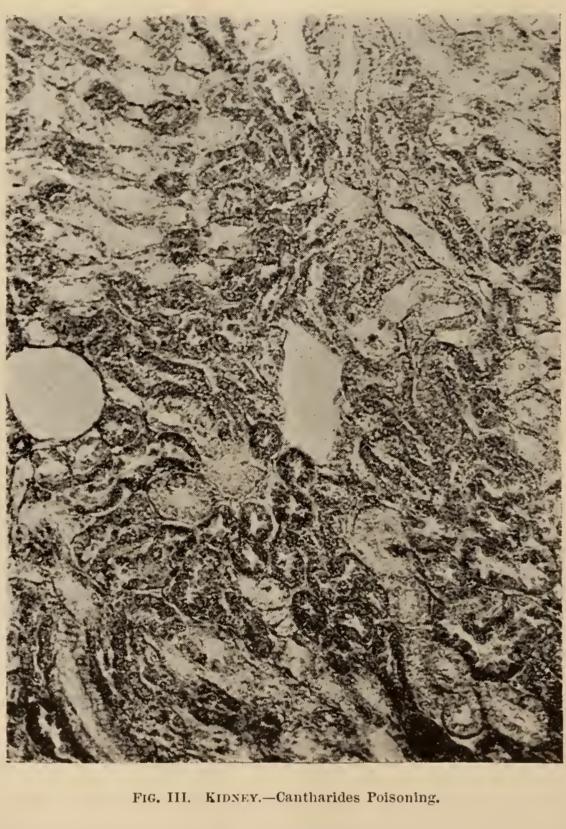


FIG. III. KIDNEY.—Cantharides Poisoning.

If phosphorus had been given hypodermically and entered the liver also by the hepatic artery, then, since the artery passes through the middle instead of the peripheral zone of the lobule, the middle zone would also have shown these spots. This is shown in the next photograph.

(3) *Diagnosis:* Fatty degeneration ot the hepatic cells *around* the portal canals.

II. LIVER.—*Cantharides Poisoning.* (Fig. 2.) Tincture of cantharides was given hypodermatically to a young rabbit. It lived seven days.

(1) *Photograph.*—The photograph is thirty diameters, but would have shown changes better had it been a little larger. By careful inspection it can be seen that both the peripheral and middle zones are full of small, round holes, varying in size. Only the central zone is normal. These white spaces are much smaller than those in the phosphorus liver. As in the previous specimen, these holes are filled with balsam.

(2) *Pathology.*—The cantharides being given hypodermatically, is carried to the liver by the artery as well as by the portal vein; hence the degeneration takes place *around the arterioles* as well as *around the portal canals.* The artery enters the lobule in the middle zone, hence the degeneration of this zone.

(3) *Diagnosis:* Fatty degeneration of middle and peripheral zones of the hepatic lobules.

III. KIDNEY. — *Cantharides Poisoning.* (Fig. 3.) This specimen is from the rabbit mentioned above, poisoned with cantharides.

(1) *Photograph,—Cortex Kidney.* The two spaces show where two glomeruli have dropped out. The nuclei and cell-wall of the columnar epithelium of the tubules are completely obliterated. This is not due to post-mortem changes, for the animal was posted in less than five minutes after it died, and fifteen minutes later the specimen was fixed, so that no further change could take place. It can also be seen, especially in the centre of the field, that in the transverse sections of the tubules the epithelium bulges into the lumen of the tubules. *There are angular projections into the lumen.*

(2) *Pathology.*—The action of the cantharides during its excretion by the convoluted tubules so deranged cellular osmosis that there was an accumulation of liquid in the cells. As a result, the cells are increased in size; they are swollen, and the cell-structure is so destroyed that the nuclei and cell-outline are not visible.

(3) *Diagnosis:* Cloudy swelling.

IV. MEDULLA KIDNEY.—*Poisoned with Turpentine.* (Fig. 4) The rabbit died in three days; there was hematuria.

(1) *Photograph.*—Transverse section of the principal tubes. One of the tubes is filled with blood. In the centre of the field between the tubes several vessels can be seen, dilated and filled with blood.

(2) *Diagnosis:* Renal hemorrhage and renal congestion.

In a case of sulphonal poisoning occurring in a young guinea-pig to which the drug was given daily, the animal died in six days, although it waked up two or three times during the poisoning. A microscopic examination of a specimen from the cortex of the kidney was made. In the periphery of the field can be seen three glomeruli, and in the centre a glomerulus-space filled with a fibrinous exudate. The columnar cells of the tubules are indistinct.

Diagnosis: Acute nephritis.

168 So. Halsted Street, Chicago.

THE HYPODERMATIC SYRINGE AND SOME OF ITS USES.

By THOMAS H. MANLEY, M. D.

Perhaps in the whole armamentarium of the physician and the surgical arsenal of the operator, if we exclude the clinical thermometer, there is no single instrument which serves so many important purposes as the hypodermatic syringe. Its invention and application as a therapeutic, diagnostic and prognostic agent, must always be regarded as one of the most useful of all instruments in the whole realm of mechanical therapeutics. Properly constructed, of the right material, one instrument should last as long as the average "medical life." My own I have carried since 1876, and now it is as good as it ever was. Needles will corrode and break, washers crack and wear out, but the body of a syringe, the piston and barrel, should last for years for ordinary purposes.

CONSTRUCTION AND CARE OF THE HYPODERMATIC SYRINGE.

These instruments are commonly made of glass and metal. The glass barrel recommends itself because it will not corrode, can be kept clean, and, besides, we can see through it when it is properly charged. But it has so many drawbacks as to condemn it altogether. Hot fluids will break it; it is liable to constant breakage from a tight piston or the ordinary handling. This may occur at a time and place when it is quite impossible to renew it. A non-corrosive metallic barrel is the ideal; nothing here needs renewal but the needles and washers. The latter can be adjusted by anyone, while a stock of the former should always be kept on hand.

The barrel should have a capacity of from thirty to sixty drops. The plunger or piston should be of metal with a leather suction-tip. Leather is to be preferred to rubber because it is not so liable to disintegrate, and can always be easily renewed. The needle is an important part of a syringe. It consists of a collar, shaft, and point. Every case should have three needles—one 1 inch long, one 2 inches long, and one of medium length and fine. The collar of the needle should be so broad and overlap the conical cap of the syringe, that when screwed home it will not permit of leakage. The point should be of concave outline, sharp and very fine.

A syringe should be always thoroughly tested before being used, and, afterwards, should be flushed out before setting aside.

The Technique of Hypodermatic Medication.

There are a few simple rules which, if carefully observed, will always render the employment of the hypodermatic needle a simple, harmless, and safe expedient. When employed to effect a general narcosis, or relief from pain, some locality of the body should be selected over which the skin is freely movable, so that the medicated charge may be sent directly into the cellular membrane or adipose tissue. A fold of the skin should be seized between the thumb and index finger of the left hand; the piston being set and the dose gauged, the point of the needle with its concavity downward is sent home with a quick movement. Of course, the depth of the penetration will depend upon the purposes for which we employ this method of medication. We must be careful that the point of the needle is not lodged in the lumen of a large vessel. Now, the piston is passed down gradually, and the pressure of a finger over the needle-path will so close it, that when the needle is withdrawn, no fluid will escape through the puncture. The general safety with which medicated solutions may be anywhere injected into the tissues without infection, injury to the nerves and blood-vessels, is remarkable and inexplicable; for many totally disregard all rules of asepsis in using the syringe, yet almost never have an accident.

Materials for Hypodermatic Injections.

Certainly everything must be reduced to a fluid state before injecting; but is it better to always carry fluids medicated for injection in the syringe case, or discard this practice altogether and carry our medicines in the form of tablets? Without doubt the latter plan is always to be preferred. By the employment of the tablet we secure uniformity of dosage, avoid the danger of concentration by saturation, the loss by leakage or breakage that we experience when we depend upon solutions. The tablet, besides, is the most economical, the neatest, and most convenient, and in the near future, must wholly displace portable saline, or alkaloidal solutions.

Some of the Uses of the Hypodermatic Syringe.

The field of usefulness of the hypodermatic syringe is a very large and ever growing one. To enter into this part of our subject with anything approaching the detail or fulness which its importance merits, would carry us through a lengthy treatise. Therefore, nothing can be attempted here under this head further than submitting a few lines. In a general way the hypodermatic syringe is employed a an *injector* and an *ejector*, for *hypodermatic medication* and *exploration.* Hypodermatically it is principally used for producing *narcosis, analgesia, stimulation, antisepsis, sclerogenesis, etc.*

The rule for dosage hypodermatically is that which obtains when medicines are taken *per orem.*

Narcosis.—Hypodermatic narcosis is to be preferred when the stomach is rebellious, or when we wish to obtain the prompt and full action of the drug. I was informed by Dr. Bastianelli, when in Rome, that in cases of pernicious intermittent, which are so common about the Campus in the summer season, with the prompt and free administration of the chloride of quinine in solution, hypodermatically administered, they were now able to preserve many lives which, formerly, would have been sacrificed.

Analgesia.—The discovery of the analgesic properties of cocaine has enormously widened the sphere of hypodermatic medication. Next to the discovery of pulmonary anesthesia this must be regarded as one of the greatest boons to humanity in any age. It may be safely employed in many cases in which pulmonary anesthetics are administered with danger to life; in conditions of shock, in organic disease, and in those who have a fear and horror of ether and chloroform. In many emergency cases in which one is called to operate late in the night, when skilled assistance is quite beyond convenient reach, or our patient is unable to meet the additional expense, it is without a rival, and will serve a thousand valuable purposes. But its administration must be intelligently supervised if we would derive the fullest benefits from it.

Here we must depart from the usual rules for hypodermatic medication. The part we propose to operate upon is sore, or hypersensitive. This must be benumbed before we take up the syringe. The point of the needle must be sent directly into the centre of the diseased area which we propose to operate upon, so that the entire needle is lost to view. The solution which we propose to dislodge, must not be deposited in one place, but should be sprayed, according to the plan of Réclus (*Gaz. Hebdomidaire,* March 12, 1889). In my analgesic operations I use a one-per-cent. solution of the hydrochlorate of cocaine, generally consuming about 75 to 100 drops in a protracted operation. A very large area may be sufficiently deadened with this dosage. In tumor operations four needle-punctures are made in such a manner as to outline a square. Now, the needle of a fully charged syringe is introduced deeply into the most sensitive part; and alternately with each puncture, after depositing five drops, when the needle is brought up to the integument, but not through, it is sent in again in a radial direction for six times, so that there are thirty separate injections made, but only four skin-punctures.

I have, recently at the Harlem Hospital, by this plan, been able to effect the painless excision of the entire breast for epithelioma occurring in a young female. She would not take ether, because a year before her only sister had died on the operating table while undergoing anesthesia. With slight modifications this is the technique that I employ in all my rectal operations, and in cases for strangulated hernia.

It is well to know, that there are some who, through some idiosyncrasy, are extremely susceptible to the drug. Therefore one should always carefully note the effect upon the pulse and respiration after the *first* injection. As women are more sensitive to the drug than men, the dose for them must be smaller. It is not satisfactory in young children.

Stimulation.—My own experience in the use of hypodermatic injections of brandy or cardiac stimulants in the shock of operation has not been satisfactory. Without a good circulation, hypodermatic medication is quite useless. Large and repeated injections subcutaneously of digitalis with the patient in a state of collapse produces no appreciable effect; but when reaction sets in, a marked cumulative action may be observed upon the peripheral vessels.

Antisepsis. — Of late years, since the germ origin of disease has been generally entertained, many have tried the effects of injecting strong antiseptic solutions into joints and abscess-cavities. For a time this plan had been warmly advocated by the Germans, but in my own hands it has been disappointing. On the whole, it may be regarded as a failure, or, at any rate, applicable in but a limited range of cases.

Sclerogenesis. — Lannelogue (*Bull. de l'Med. Mod.*, June 12, 1892) has presented an elaborate essay on the great value of strong solutions of zinc chloride injected into the periphery of strumous, tubercular masses, occurring in the neck and other parts of the body. He claimed that it had a hardening effect upon the tissues and destroyed the bacilli; but later observers have not met with satisfactory results from this plan of treatment. There may be something in it, perhaps, in certain cases, properly selected.

As an Exploratory Agent.

For the purpose of exploration as a diagnostic aid the hypodermatic syringe is of incalculable value. Though there is a difference of opinion among authorities concerning the extent of its employment, all are agreed as to its intrinsic worth as an exploratory agent. In the case of fluid formations within the abdomen, when they lie external to the peritoneum, it may be employed without the least danger. If operators and diagnosticians would more often employ it in those large masses of stony hardness which they hastily assume are solid growths, they would be spared the humiliation of mistaking a sarcous mass for a liquid cyst. Sometimes one may prepare his patient for an extensive operation for enucleation of a massive tumor in the neck or elsewhere, but on division of the parts, it proves an abscess. A good, long, strong needle-attachment on any ordinary hypodermatic syringe will suffice for any description of exploratory puncture.

302 West 53d St., New York.

THE HYPOTHESIS OF NERVOUS INTERFERENCE.

By Thomas W. Poole, M. D.,
M. C. P. S. Ont.; Fellow of the American Electro-Therapeutic Association.

This new hypothesis has been proposed, and is being introduced, into physiological literature, as a substitute for the somewhat discredited hypothesis of inhibition. It is based on the alleged analogy of the coincidences and interferences of waves of light, sound and water. Thus, in each of these cases, we are taught, that when opposing waves come together, if the crests coincide, the result is a united wave of increased size, or intensity, while if the crests of one set of waves fall in the trough of the opposing waves, the result is "interference", which in the case of nerve waves would result in inhibition or paralysis.

Seeing that this new hypothesis of interference is based, in part, upon the analogy of the cases of light, sound and water, I wish the reader to examine with me, briefly, the actual facts in regard to interference in the cases mentioned, before proceeding to consider the adaptation of the new hypothesis to explain the phenomena to which it is sought to be applied.

Prof. John Tyndall, F. R. S., says of musical sounds, "if the two sounds be of the same intensity, their coincidence produces a sound of four times the intensity of either; while their opposition produces absolute silence." (On Sound, p. 384, 3d ed.) "Thus," he says, "by adding light to light we can produce darkness, just as we can produce silence by adding sound to sound." (Ib. 358.) Again, in describing the adaptation of the double syren, as a mechanical instrument for producing exact coincidences and interferences of sound, he says:—"In fact the condensations of the one coincide with the rarefactions of the other, and the absolute extinction of the sounds of both syrens is the consequence." (Ib. p. 388.)

I have quoted these positive assertions, (which are made also by other teachers of physical science) not so much for the sake of what they allege, as to contrast them with what is to follow. The fact is, these assertions, if not positively untrue, are only true in a very limited sense, which by no means justifies them, as Prof. Tyndall acknowledges in the very next paragraph from which I have just quoted. He is forced to admit that here he "may have exceeded the truth;" for at the very moment when interference is complete, "you still hear a distinct sound," and there is "by no means absolute silence;" —then why did he say there was! The fundamental note is suppressed, but as he says, "we do not extinguish its octave," and instead, "we have the first full harmonic of the instrument." (Ib. 389.) Now the octave, or first harmonic, requires for its production, double the number of vibrations of the fundamental note; and this is what we get where we were assured the result was a mutual destruction of sound and "the aërial rest which corresponds to silence."

Prof. Tyndall offers in explanation, that this result is due to "the suddenness and violence of the shocks," and to "the aërial disturbances" thus caused, which produced "secondary waves," resulting as we have seen. But there were to be no secondary waves! and if they can thus occur, in defiance of the conditions which ought to exclude them, then such "interference" is of no account, and is entirely valueless as an argument, based upon analogy, in support of a similarly assumed interference of waves of nervous energy.

What appears, after all, to be the real truth in this matter, as stated by Prof. Tyndall, in another page, is, that, "the law of the superposition of vibrations above enumerated, is strictly true only when the amplitude (of the vibratory waves) is exceedingly small." (Ib. p. 384.) In other words, coincidences and interferences augment or arrest the waves of sound, only when these waves are exceedingly small; and when the waves are large, the theory does not apply, for here the result is a multiplication of the number of vibrations, and the production of still higher notes, instead of their arrest and obliteration. It seems strange that this important fact has only been allowed to appear incidentally and in somewhat obscure language, while the erroneous statements, in the interest of the favorite theory were put forward with clearness and re-iterated frequently.

In regard to the interference of rival waves of water, it is said by Prof. Tyndall, and others, that "they mutually destroy each other," that "we have then still water," and "a dead level," etc. (Tyndall, Six Lectures on Light), leaving the impression on the mind that the waves are arrested, and proceed no further. On the other hand, Blaserna says of the rival waves of water, that, beyond the point of interference, "each wave is propagated exactly as if the other did not exist and never had existed," (Theory of Sound, etc., p. 30.) This again appears to be interference which does not arrest, or inhibit, and would be useless as the analogue of nervous inhibition.

In regard to the aid offered to the hypothesis of nervous interference by the analogy of the interference of waves of light producing darkness, it is not reassuring to find that the undulatory theory of light, in which the doctrine of interference plays a prominent part, is open to serious if not fatal criticism. The indictment against it is too long and too abstruse to be presented here, but some idea regarding it may be gathered from Stallo's "Concepts of Modern Physics." (p. 113.)

From all this, it would appear that the new hypothesis of nervous interference derives very slender support, if any, from alleged analogous cases usually quoted in its favor,—and after all must stand or fall on its own merits. This little excursion into the domain of physics, I trust has not been unprofitable, and the ground is now clear for a consideration of the adaptation of the new hypothesis to the phenomena it is expected to explain, in some of which, we are told, the older hypothesis of inhibition has notably failed.

We are now prepared to see how far this new hypothesis of nervous interference is capable of application to the facts it is expected to explain. In order that no injustice may be done to the hypothesis, I shall quote freely from Dr. Lauder Brunton's exposition of the subject. He says:

"Supposing nervous stimuli to consist of vibrations like those of light or sound, the action which any nerve-cell would have upon others connected with it would be stimulant or inhibitory according to its position in relation to them. If its relation be such that a stimulus passing from it to another cell will there meet with a stimulus from another quarter in such a way that the waves of which they consist coincide, the nervous action will be doubled; but if they interfere, the nervous action will be abolished. If they meet so as neither completely to coincide nor to interfere, the nervous action will be somewhat increased or somewhat diminished, according to the degree of coincidence or interference between the crests of the waves." (Pharmacology, p. 156). Thus, under this schema, "Any nerve-cell may exercise an inhibitory or stimulating action on any other nerve-cell, and this action will be merely a question of the length and arrangements of its connections and of the rapidity with which stimuli travel along them." (Ib. p. 157.)

Having explained the nature of this proposed new hypothesis, at considerable length, Dr. Brunton proceeds to apply it in certain experiments made by Dr. Fraser, where I shall continue to follow him. A frog is poisoned with atropine till its condition is such that "voluntary and respiratory movements are entirely abolished. ...both afferent and efferent nerves completely paralyzed and the only sign of vitality is an occasional and hardly perceptible beat of the heart.....The animal appears to be dead, and was believed to be dead, until Fraser made the observation that if allowed to remain in this condition for four or five days the apparent death passed away and was succeeded by a state of spinal excitement." (Ib. p. 158.) In some of these experiments this apparent spinal excitement, as indicated by spasms and tetanus, continued for the long period of seventeen days. (Dr. Ott, Action of Medicines, p. 52.)

To quote further:—"A condition very nearly similar to that caused by atropine is produced by morphine," the effects of which, in the frog, "are exactly similar to those produced by the successive removal of the nervous system from above downwards." As in the case of atropine, successive stages of paralysis appear, and here also "reflex action is abolished;" in both cases even the application of a faradic or galvanic current to an exposed and bare sciatic nerve, failing to elicit any muscular response, though the muscles themselves remained irritable. (Dr. Ott, loc. cit. p. 52.) It ought to be added, that during the period of spinal excitation, referred to, "a slight touch caused violent convulsions, just as if the animal had been poisoned by strychnine." (Brunton, loc. cit., p. 159.)

This is a striking picture; and the problem here offered, is, first, how to explain, on the hypothesis, the long period of apparent death, followed by the still longer period of spinal nerve "excitation." Dr. Brunton tells us that this is one of the cases "almost inexplicable on the ordinary hypothesis" of inhibition, and further, that on that hypothesis, "we must assume," that during the period of apparent death, "the inhibitory centres in the cord are intensely excited, so as to prevent any motor action, and that afterwards they become completely paralyzed," permitting the motor cells to display their activity, "and thus we get convulsions from slight stimuli." (Ib. 159.) Such an explanation as this, on the old hypothesis of inhibition, which requires us to see intense excitation of any part of the nervous structures in the midst of such profound paralysis, is surely absurd enough; but the hypothesis of inhibition being already sufficiently discredited, needs no further comment.

In attempting to explain the phenomena mentioned above, on the new hypothesis of nervous interference, Dr. Brunton says:—"These drugs [atropine and morphine] acting on the nervous structures, gradually lessen the functional activity of the nerve fibrils which connect the nerve-cells together; the impulses are retarded, and thus the length of the connection between the cells of the spinal cord which is calculated to keep them in proper relation in the normal animal, just suffices, at a certain stage to throw the impulses half a wave length behind the other, and thus to cause complete inhibition, and apparent paralysis." "As the action of the drug goes on, the retardation becomes still greater, and the impulses are thrown very nearly, but not quite, a whole wave length behind the other, and thus they coincide for a short time, but gradually again interfere, and therefore we get, on the application of a stimulus, a tonic convulsion, followed by several clonic ones and then by a period of rest." (p. 160.)

Now, if the reader will study the situation thus presented, for a little time, he will see, that "as the action of the drug goes on, and the retardation becomes still greater," the relative position of the opposing wave crests and troughs is continually changing, and the coincidences and interferences, with their attending periods of spasm and of relaxation, must necessarily follow each other at frequent intervals. Consequently, on Dr. Brunton's exposition of the case, the hypothesis fails to account for the long period of continuous paralysis, followed by the still longer period of continuous "excitation."

In order to meet the requirements of the case, it would be necessary to ignore the effect of the increasing retardation, mentioned above, and to provide for a long period, during which the crests of one set of waves would fall exactly in the troughs of the rival waves, and do so continuously for four or five days. It would then be necessary to explain why a change occurred, so that one set of waves, by receding or advancing, exactly half a wave length, caused the rival crests to coincide, the crests continuing to come together with uniform regularity, to represent a still longer term of nervous excitation.

Now the fact of retardation is plainly avowed, and indeed it could not be ignored, for strychnine retards the nervous impulses to such an extent, that "the latent period of ordinary reflex" is sometimes "increased as much as ten times the normal," and in this respect, atropine and morphine act like strychnine. (Ib. p. 150.) So that we must recognize among the essential features of this case, the retarding effects on nervous impulses of the drugs in question. And recognizing this effect, it is impossible to reconcile the hypothesis of interference with the phenomena of this problem, because with the continual and increasing retardation, "as the action of the drug goes on," it is physically impossible to secure the necessary continuity of coincidences and interferences to explain the long period of paralysis followed by a still longer period of spinal excitation.

The exposition of the case, given by Dr. B. as quoted above, would apply better to a condition of poisoning by strychnine, with its frequent alternations of spasms and relaxations, than to the problem with which he set out. But the hypothesis fails even here; the effect of retardation comes into play again, and Dr. B. tells us that if it is assumed that the retardation is equal in both the transverse and longitudinal fibres of the spinal cord, "we do not get a satisfactory explanation of the rhythmical nature of the convulsions." It is necessary to assume further, that these two sets of fibres are not equally affected, but that retardation is greater in one set than in the other; and though our author does not say so, it is further necessary to "assume" that the amount of retardation in each case, and all other necessary conditions, are exactly what the exigencies of the hypothesis require—and then "we shall get the impulses at one time thrown completely upon each other, causing intense convulsions, at another, a half-wave length behind, causing complete relaxation, which is exactly what we find." (Ib. p. 161.) Not "exactly." Looking closely at these nervous waves, what do we see? On the hypothesis, during the strychnine convulsions, the crests of the rival waves are coinciding, doubling the nervous energy. If the crests continued thus to coincide, the convulsions, of course, would go on without ceasing. But the retardation assumed to be produced, as we have seen above, in one of the wave currents, causes its crest to gradually fall behind the other, and the convulsions cease. It would be expected that just at this point, while the crests are still only slightly separated and the nervous waves have hardly had time to recede from their maximum height, that a renewal of the convulsions might readily be brought on. But such is not the case. In fact, as Dr. Brunton tells us, it is just at this beginning of the interval between the spasms, that the usual irritation of a touch, etc., fails to produce a fresh convulsion. (Ib. p. 160.) It is not until later in the interval, that is, during the period of full interference,—at a time when the crest of one set of waves is falling in the troughs of the other,—and nervous energy is at the lowest, that the slight external "stimulus" brings on the convulsion: just at the time, when, on the hypothesis, it ought not, and indeed could not, occur. The failure of the hypothesis here, I think, is strikingly apparent.

Dr. B. makes no attempt to explain the striking difference apparent between the two conditions of interference just alluded to. In one case—that of strychnine—when interference and inhibition ought to be at the maximum, a slight touch will induce a convulsion; in the other—the atropine case—even a faradic or galvanic current applied to a bare nerve trunk fails to elicit any sign of reflex activity,—though here a precisely similar condition of nervous relationship is assumed to be present. If such an apparently simple (functional) occurrence, as nerve wave crests falling into the troughs of other waves, can produce such appalling effects as profound paralysis and apparent death in one case, why should a similar condition of nervous "interference" be attended by quite different and even reverse phenomena in another?

Again, let us look for a moment at what this hypothesis demands as a condition of maintaining the paralysis and seeming death of the frog in the atropine case. Consider for a moment how large a portion of the brain and spinal cord is made up of nerve fibrils closely packed together, of a size ranging from one-two thousandth to one-sixteen thousandth of an inch in diameter: what must be the enormous number of interferences which must take place in order to suppress all appearances of nerve activity throughout every part of the body of the animal, and how exact and persistent these must be, during the four or five days of apparent death. And knowing what we all know of the effects of the faradic current on active nerve tissue, can we be expected to believe that a current of electricity, breaking in among these multitudinous nerve waves, would not accelerate, or retard, or disturb the rhythm of these impulses, and, amid this disturbance, so modify the exactitude of some of the many millions of interferences, as to afford scope for an exhibition of reflex activity? The thing is too incredible for belief, seeing that all the electric current would need to do, would be to accelerate or retard the impulse, by half a wave length in order to change interference and paralysis into coincidence and stimulation.

Again, the hypothesis fails to account for the similarity of the symptoms of poisoning by atropine and morphine, as compared with ablation of the central nervous masses, from above downward, as quoted in the opening paragraphs above. Such a destruction of nervous tissue as the latter necessitates, is surely not to be compared with a deviation forward or backward of a half wave length of nervous energy. The effect in one case is too great, and in the other too little, to admit of comparison on equal terms.

Finally, the following considerations would seem to militate seriously against the hypothesis of interference. As we have seen above in the case of the frog poisoned by atropine, "respiratory movements are entirely abolished......and the only sign of vitality is an occasional and hardly perceptible beat of the heart" (Ib. p. 158). Under these circumstances, the circulation and oxidation of the blood must be at the lowest ebb consistent with life. Now the hypothesis of interference demands undiminished activity of nerve currents. On the hypothesis, these effects do not appear, not because they are inoperative, but because, though present, and active, they interfere with each other, and so prevent the ultimate effects which ought to appear, and would appear were they not prevented. In other words, the nerve centres are still generating nerve force, and the motor trunks are transmitting it, till their further course is arrested by the interference of the opposing wave. But such a continued activity as is thus demanded of the nervous centres and their motor nerve trunks, seems impossible under the circumstances, for all physiologists agree that oxygenated blood, in ample quantity, is an absolute necessity for nerve activity; and this pabulum cannot be present under the conditions of respiration and circulation recorded above. In addition to this, it will not do to ignore the directly poisonous effects of these powerful narcotics on nervous tissue and the loss of function which must necessarily follow. To suppose that under such conditions nervous energy continued operative, and that one-half of the nervous system was expending its force in keeping the other half in check, seems too absurd for further discussion.

I propose in the next succeeding paper to offer the reader a modification of physiological doctrine, whereby these absurd and imaginary hypotheses of inhibition and interference can be wholly dispensed with, and the phenomena in question explained in a rational and satisfactory manner.

Lindsay, Ont., Canada.

SPONTANEOUS RUPTURE OF THE STOMACH.

By James Collins, M. D.

On March 8th, 1893, L. J. R., aged 74 years, died suddenly, with a somewhat remarkable history. The lady for several years had suffered from lateral curvature of the spine, and had frequent attacks of indigestion and tympanitis. On the morning of the day aforesaid, she seemed to be quite active and well, and her mental faculties were unusually bright. About four o'clock in the afternoon she complained of some indigestion and discomfort; these symptoms continued for about two hours, when she sent for a physician.

I found her suffering from considerable distension and tympanitis. There was no account of anything unusual having been eaten by the patient, nor could I elicit any other reason for the sudden attack. Suspecting bowel obstruction somewhere at the upper portion, attempt was made to afford relief by anti-spasmodics and gentle purgatives. Returning in about an hour, I found her somewhat worse; was informed that a few minutes before I entered her room the sound of an explosion within the abdomen had attracted the attention of those present. This was followed by rapid collapse. She seemed to realize the gravity of the change, and told her husband that she now believed she was about to die, and asked that she be allowed to do so with as little disturbance as possible. Her end speedily came.

A post-mortem was permitted. The patient was emaciated, and the muscular system was weak. On opening the thin abdominal walls a large quantity of gas escaped. About one-third of the length of the upper end of the small intestine and the stomach were dilated. At the lower distended portion were found two hard little lumps of undigested matter which had been caught in the narrow part of the small intestine. Below this point the intestines were flaccid, small, and empty. Above the point of obstruction the intestines were distended about two inches in diameter. The stomach had collapsed. Examination showed that about two inches from the pyloric end of the stomach a rupture had occurred about two inches long. At this point the stomach walls were very much distended and the tissues atrophied. At the further point of the rupture a small perforating ulcer was detected. The contents of the stomach had escaped into the abdominal cavity causing peritonitis. What attracted the attention, however, was the inclination of the axis of the stomach, the esophageal end being drawn upwards, and the whole body of the stomach crowded over into the space caused by the lateral curvature of the spine, making the stomach axis very oblique, the pyloric end drawn downwards. The other organs were normal.

704 Franklin St., Philadelphia.

FRENCH THERAPEUTIC NOTES.

By Thomas Linn, M.D.

Prudence in Therapeutics.

Dr. Guermonprez has just published an interesting pamphlet on this subject. To American physicians, the French seem at all times prudent in therapeutics, as the French have but little faith in drugs. They give a large number of "*Tisanes*"; that is, simple herbs put into boiling water as we make tea; lime- and orange-leaves are commonly used, while a mixture is often given under the name of "*Especes*" or "*Fleurs Pectorales*". These pectoral flowers or herbs, are in French, *the mauve, pied de chat, pas d'ane, coquelicot, bouillon blanc,* and *guimauve.* The poppy flowers, violet and lichen, are reputed pectorals. This French system of giving long and hot drinks at the outset of all acute troubles, as well as their old habit of putting on plenty of counter-irritation in the form of mustard poultices and plasters, has really its good side. Besides this, no great quantity of internal medication is used in France.

Speaking of prudence in medication M. Girode has just given the details of the results of giving salol in a *cholera case.* The patient had taken every three hours six doses of salol of 50 centigrams (gr. viii) each, and at the autopsy a mass of salol was found in the stomach weighing nearly three grams. This is not astonishing in a disease where the digestive functions are in such a bad state and all the secretions troubled, and yet Hueppe and others recommend salol as an anti-choleric medicine. Not only was the therapeutic end in view in this case completely lost and failed, but there is a certain danger in allowing this insoluble substance, as well as others, to remain long in close contact with a stomach that may have ulcerations on its surface. Intestinal pathology gives a number of cases of insoluble drugs causing death. Is it astonishing after these facts that sometimes drugs do not act?

Danger of Cocaine in Local Applications.

Attention is called to the fact that cocaine in ointments or solution, even as high as one in fifty, applied to the breast of nursing women will prevent the erection of the teat and suppress the secretion of milk in a few days. This method of preventing pain during cracks in the nipple, which is so often used, must be now given up, and antiseptic or stimulating lotions used instead. Here brandy or cologne water are used with good results. The stopping of the milk by cocaine applications to the nipple and breast is only temporary as far as known, but it is apt to continue and cause much disappointment to mother and child.

PICRIC ACID IN EPITHELIOMA.

Speaking of local applications Dr. Quinquaud, of the St. Louis Hospital, recommends the application of picric acid to epithelioma as a topical remedy.

TREATMENT OF ALBUMINURIA.*

Dr. Lancereaux recommended last year tincture of cantharides in albuminuria, and was rather laughed at by the members of the Academy of Medicine in Paris. We now have a confirmation of this method by Dr. Cassaet who gives six drops of the tincture per hypodermatic injection in albuminuria. When employed in epithelial nephritis (acute or chronic) with considerable albuminuria, dysuria and diminution of urea, the quantity of urine was noticed to increase three-fold while the elimination of urea was nearly as much, and all the toxic substances seemed to pass off, causing a complete depuration of the organism. The action is not only favorable but it is also immediate, so that this remedy will be found useful in acute albuminuria as well as the chronic cases.

TAR PILLS.

These are much used in chronic bronchitis, and they are difficult to make of a reasonable size so that patients can swallow them. Ivanoff uses potter's earth as an excipient, and has succeeded by using this clay in making a small pill that has two grains of pix in them.

VALZIN.†

The German papers notice the discovery of this substance by a Berlin chemist. It seems to be similar to saccharin and has 200 times the power of cane-sugar as to sweetening. The saccharin has 300, but it has never been a success, owing to the different bad symptoms that it produces. The new product is kept a secret, like so many of the German new drugs. They are likely to beat the Americans on patent medicines if they have not done so already.

DIGITOXINE.

This preparation is a pure product that is very cheap and easy to manufacture, and seems to be the most active of the alkaloids of digitalis. Masuis and Van Aubel have given the results of their experiments before the Royal Academy of Medicine in Brussels. The dose of one milligram to one and a half gave excellent results without any secondary bad effects on the digestive organs. A number of trials were made on dogs (with sub-cutaneous injections), which did not produce the slightest inflammation or irritation. The following formula is advised: Digitoxine, 20 milligrams; chloroform, 2 grams; alcohol, at 94° C., 26.5 grams; and distilled water, 48 grams. This makes eighty hypodermic injections, one gram or a syringeful may be given every three hours. In collapsus and cases of urgent medication being needed it is most likely that this drug will soon replace caffeine and other excitants.

GALEGA, A GALACTAGOGUE.

Galega root is not a new drug at all but it has been studied a good deal in France for the last few years, since a lady student made her thesis on the subject of real galactagogues. It seems really to promote the secretion of milk with certainty, if it is properly prepared. The most active preparation is the watery extract. The plant should be got as fresh as possible and dried in an oven when it can be powdered, wet then with its weight of cold distilled water; after twelve hours' standing it is put into a displacement apparatus and more distilled water added at 20° C. The resulting liquor is heated in a water-bath, filtered, and then evaporated until it has the usual thickness of an extract. It is used in pills of 50 ctgr. to one gram (gr. viii to xv), and two to four of them given per day.

---

* The reader's attention is directed to the contribution of Dr. Caldwell, showing the effect of cantharides upon the kidney, with the editorial comments upon the same.—ED.

† See AMERICAN THERAPIST, June 1893, p. 313.

Phosphate of Copper in Tubercular Tumors.

Dr. St. Germain, the well-known Paris children surgeon, uses two injections of copper in white tumors. The first contains: Crystallized phosphate of soda, 5 grams, with distilled water and glycerin, *of each* 30 grams. The second: Acetate of copper, 1 gram, to twenty *each* of water and glycerin. These are mixed without filtering. They must be well shaken before using. As a rule they are injected behind the great tronchanter only once in two weeks. It is not very painful and shows its action by fever which will run up to 38° or 39.5° C. (100° to 102° F.), and lasts three days. There is a local swelling of the ganglia and some pain and stiffness. After the fever drops the whole general state improves, and the patent gets quite lively and gay with an excellent appetite and general improvement.

Ipecacuanha in Flatulent Dyspepsia.

One of the brightest of the young Paris hospital doctors who has studied stomach troubles for the last five years, Dr. Mathieu, says, that ipecac is the best of the excitomotor remedies in this complaint. He gives the drug in powder, and in a compound tincture. The dose taken is two to ten centigrams (gr. ⅓ to 1⅔) of the powder, which may be mixed with bicarbonate of soda, colombo, and other correctives. If the tinctures are used, tincture of ipecacuanha is added to tincture of colombo and tincture of gentian. The first one, in France, is made one-fifth strength, so the dose is easy to calculate. It should be given after meals.

Antiseptic Varnish.

Dr. Berlioz gives the composition of this varnish, which will be found useful on mucous membranes and where it is difficult to keep any other dressing on. He calls it *steresol.* Gum lac purified and soluble in alcohol, 270 grams; benzoin, the same, 10 grams; balsam of tolu, 10 grams; carbolic acid, crystallized, 100 grams; oil of cinnamon, 6, and saccharin 6 grams; then add alcohol to make a quart.

115 Place Centrale, Aix-les-Bains, France.

Selection.

*TREATMENT OF ACUTE ARTICUAR RHEUMATISM.**

By A. Robin, M. D., Paris.

Taking a typical case of a young man seen in the hospital, aged twenty-six, we find no difficulty in making a diagnosis. A number of the joints are attacked with swelling and intense pain; sweating is so abundant that the patient has to change several times a day, while the temperature of the first day was 105° F. The patient, while a strongly built man, was as pale as wax. There was no albumin in his urine, but nitric acid put into it gave a red meat-color, showing the pigment discovered by Harley, called *urohematin.* Just at the base of the heart on the left border of the sternum we heard a soft *souffle,* which seemed to belong to this spot and did not extend. It was then an anemic sound and not that of endocarditis; this is confirmed by finding the "*bruit de diable*" in the neck vessels.

So we have all the signs of acute articular rheumatism with anemia, which destroys the globules, and in this case it acted so rapidly that we found the urohematin in the urine. The intense pain must be met, while the hyperthermia is the effect of the deglobulization, and constitutes an indication that is not so important as the others.

As to the rheumatic element itself, two drugs have only survived among the mass of medicines that have been recommended; they are sulphate of quinine and salicylate of soda. Which shall we give? The first is a tonic and anti-rheumatic remedy, but in such an acute case as this it would have to be given in a very large dose, fifteen grains for instance. This would restrain organic oxidation, but without diminishing disintegration and cellular destruction. In febrile affections oxidation is a useful process as it gives products that are easy to eliminate and those which are relatively but little toxic, so that we should try to increase it rather than retard it in such cases. It is true that we can give small doses of the drug, which seem to do this, but such weak medication in such a case would not have any therapeutic effect.

---

* Translated by Thomas Linn, M. D.

So we are reduced to the salicylate of soda; its mode of action is not yet well known; it is, however, certainly settled that it helps the elimination of products from the organism by the urine, that are not soluble and probably toxic. They are those products that have a great deal to do with the destruction of the blood globules, and they act all the more as the temperature is high, so that indirectly salicylate of soda by insuring their elimination is useful in limiting the anemia and reducing the hyperthermia. As to dose, two to four grams (gr. xxx to LX) in twenty-four hours is sufficient.

As the salicylate reduces the quantity of urine we must give plenty to drink; milk must always be used when possible. Infusions of slightly diuretic herbs are good. For the pain the best thing is to envelop the joints with cotton wadding, on which put a liniment and cover with oil-silk. The following liniment is one of the best: French "*baume tranquille*," 40 grams; extracts of opium, belladonna, and hyoscyamus, *of each* 2 grams; with chloroform, 10 grams. Sig.: Use to wet the wadding.

This local and general treatment will bring about an amelioration in a short time, and in a week the salicylate can be left off; the rheumatism is cured but the anemia remains. Other morbid elements may occur, such as gastric trouble and a very serious nervous asthenia. For the indigestion, give 15 grams of *seignette salt.* This double tartrate of potash and soda, besides its purgative effect, should have a favorable action on the elimination of destroyed albuminoid matters. In this destruction nitrogen, hydrogen, and carbon are eliminated as urea, while sulphur should be eliminated by transformation into sulphate of soda and potash. The reduction of seignette salt furnishes these two bases to sulphuric acid. It is thus a useful purgative and an alkaline drug.

For the nervous asthenia there is nothing better than strychnine. It may be given as follows: Tincture ignatia amara and tincture badian (or star anise), *of each* 5 grams; six drops of this is administered per day, and, besides this, phosphate of soda and magnesia, *of each* ten centigrams (gr. $1^2/_3$), may be used twice a day.

As soon as the digestive tract is in good order, iron and cinchona bark may be ordered. The proto-iodide of iron is given because the iodine may have a favorable effect over the rheumatic trouble.

As the success of this treatment is always constant it will do in most cases, but it should be always supplemented by a mineral-water cure when possible, if the season is favorable.

In choosing the watering place we must be guided by two things; 1st, by the presence of articular residus; 2nd, by the general state of the patient.

If there are still some exciting elements in the joints, the feebly mineralized hot waters, such as Neris, Luxeuil, and Lamalou, are indicated. If the residues are torpid then the hot, more exciting waters, such as Aix-les-Bains, Luchon, Bourbon, etc. If the deposits are not only torpid but absolutely stiffened and fixed in a chronic condition, then the still more hot and heavy application of the mud-baths of Dax and St. Amand are used in France.

The general state of the patient is important to take into account when ordering a water-cure. In very excitable patients, the hot, exciting sulphur waters must be avoided, and Neris, Lamalou, and other sedative hot waters used, while the salines are good in such cases. If, however, the patient is lymphatic, then the sulphur waters are the thing. Uriage, in particular, and Aix-les-Bains and Marlioz are good for the scrofulous.

Therapeutic Memoranda.

Cathartic Acid.—The active principle of the senna leaves has been extracted by an improved process by Gensz. The substance, which is known as cathartic acid, consists of an amorphous powder, yellow in color, difficult of solution in cold, but easily in hot water.

Phenosalyl.—This is a new antiseptic produced by heating together carbolic, salicylic and lactic acids, and when cold, adding a mixture of menthol and eucalyptol in glycerin. The product is a more perfect germicide than carbolic acid, and not nearly so poisonous.

Strychnine a Combination of Two Alkaloids.—Late observations concerning strychnine are to the effect that commercial strychnine as found in the market contains at least two alkaloids, one of which it has been proposed to call strychnine and the other homo-strychnine.

Catarrh Cure.—A very effective application for catarrh of the nasal passages is the following:

Iodoform	10 grs.
Carbolic acid	15 "
Petrolatum	1 oz.

Mix. Apply to the inside of the nostrils at night on retiring.

Uricedin.—This has gained some little notoriety during the past few months, from the claim of its originator, that it is a valuable solvent for stone in the bladder. Goldmann finds that the remedy is a mixture of 30 parts of sulphate of sodium, 10 parts of carbonate of sodium, and 60 parts of citrate of sodium.

The Eucalyptus in Pulmonary Troubles.—The value of the eucalyptus tree or plant in pulmonary troubles has been demonstrated. It is said that in localities where these plants grow thickly immunity from fever is enjoyed—a suggestive fact that ought to bear fruit in localities where fevers flourish. And somebody further suggests to place in hospital corridors, particularly in hospitals where consumptive and fever patients are treated, tubs and pots of this plant to test its virtue.

Liniment for Rheumatism.—A most excellent application for rheumatism is composed of equal parts of oil of wintergreen and olive oil. Soap liniment is sometimes used instead of olive oil. It is said to give almost instantaneous relief from pain in acute rheumatism. The reason for this is, that as oil of wintergreen is largely composed of salicylic acid, it produces, by its local application, the same effect that the acid does when administered internally.

To obtain the best results from this application the parts should be wrapped in raw cotton.

Resorcin for Keloid. — Resorcin has lately been recommended for the treatment of keloid. It should be applied in combination with cacao butter, taking ten per cent. of resorcin, and it is said, that relief is complete and permanent. Resorcin is also used to detect disease of the cornea of the eye. One drop of a 10 to 20 per cent. solution produces in the healthy eye a reddish coloration at once, which disappears with aid of a little water. If the cornea is affected, a more or less red color is imparted, which will persist for 20 minutes or so.

Diaphtherin as an Antiseptic Dressing Material.—Klecki has examined the comparative antiseptic action of various drugs on the staphylococcus aureus, and has found that the vitality of the microbe is destroyed by a 1-per-cent. solution of carbolic acid, creolin, and thymol; a 3-per-cent. solution of aseptol; a 0.3-per-cent. solution of boric and salicylic acid; a 5-per-mille solution of salicylic acid and of lysol; and a 2-per-mille solution of diaphtherin. The author recommends diaphtherin as a most valuable antiseptic agent, which possesses the great advantage of never causing any exanthemata and being altogether free from any toxic properties.—*Gazeta lekarska*, 1892, No. 34.—*Universal Med. Journ.*, Jan'y, 1893.

Copper Arsenite Mixtures.—Copper arsenite is now being more or less used in diarrhea, and occasionally it has been ordered in mixture form, instead of the usual pill. In such cases it is advisable to add a few drops of diluted hydrochloric acid, to dissolve the arsenical salt, or if the mixture be alkaline the compound will not be dissolved. Attfield states that it is wholly insoluble in water. Whether dilute HCl affects the chemical character of the arsenite is unstated by Attfield, but even if it does, it would be a most dangerous procedure to dispense the mixture simply holding it in suspension.—*Pacific Drug Review*, January, 1893.

When dispensed in solution without thorough trituration, dilute HCl should be added to make the mixture clear.—Ed.

A Promising Mexican Drug. — A committee of physicians, appointed by the Medical Institute of the City of Mexico, is engaged in making a careful analysis and thorough test of the remedy "jicama," which General Rivera, of that city, is administering gratis to the poor of the city for the typhus fever, and with wonderfully beneficent result. The chemical analysis shows that it is a valerianic root which gives a highly acid reaction, due to the great quantity of valeric acid which it contains. They also find that it is a powerful sudorific when taken as an infusion. A full report of their investigations is promised at the July meeting of the institute, and it is not improbable that a new and most useful remedy will be added to the materia medica.

Calcium Sulphide in Phthisis.—Dr. Witherle (*Medical Record*, January 7, 1892), of St. Paul, Minnesota, has used the drug a number of times and always with marked benefit, and although the benefit has not been permanent in advanced cases, in at least two cases of well-marked phthisis in the early stages there has been a complete recovery. The drug is to be given in as large a dose as can be tolerated, which is usually found to be a grain every two hours. The *British Med. Jour.* has a note from a physician in Ceylon, who has used the sulphide of calcium successfully in elephantiasis arabum, a disease hitherto uninfluenced by medicine and supposed to be due to the presence of *filaria sanguinis hominis*. It should be remembered that sulphide of calcium deteriorates if exposed to the air, and must either be fresh or preserved in gelatin-coated pills.

Ice in Phlegmasia Alba Dolens.—Dr. John A. Miller (*Pacific Med. Journal*), in treating on the subject of "milk leg," speaks highly of the efficacy of the cold treatment of the disease. He first used it in 1886, and since then has used it in six cases, with uniform and decided success. The procedure was in the following manner: An ordinary large towel was dipped into iced water, wrung out and clapped around the affected limb; a heavy flannel roller bandage was then applied from the toes upward to the groin. On the most painful parts, like the inner aspect of the thigh, the popliteal region and the calf of the leg, were laid rubber bags filled with ice. These were kept in place by a circular binder, independent and outside of the roller bandage. The patient was a little shocked when the cold towel was first applied, but the unpleasantness was only momentary, and then the reaction brought ease and comfort. She desired the ice bags to be renewed quite often at first, as she claimed they relieved the pain, as anything else had never done before. The pain was entirely controlled by the cold. The temperature dropped from 103° to 100° the next day, and the patient commenced to improve, which continued uninterruptedly. The towel was freshly dipped from four to six times in the twenty-four hours. As soon as the patient experienced relief, she was quite anxious to endure the temporary chill from a fresh compress, because the limb felt always better for it afterward; the towels soon became dry and hot, and this gave rise to painful symptoms again.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
4621 FRANKFORD AVE., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world. Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. AUGUST 15th, 1893. No. 2.

Editorial.

PATHOLOGY AS A THERAPEUTIC GUIDE.

While pathological investigations and experimental studies on the part of physiologists have done much in the past decade to advance our ideas of the practical value of many remedies, the deductions of operators have not always been of a character to command themselves to the practitioner. Within the past few years Professor Reichert, of the University of Pennsylvania, has published a series of reports upon caffeine and strychnine, showing beyond doubt that these drugs are cardiac paralyzers, and yet the shrewd clinician goes right along employing them as cardiac stimulants. Dr. Poole, of Canada, some years ago, pointed out the fact, hitherto but partially recognized, that electricity is a paralyzer, and that this is true is shown by the adoption of the electric current in the State of New York in place of hanging. And still, the value of this agent in improving nutrition and up-building the nervous system is well known, and those most conversant with its properties predict for it a great future in the department of applied therapeutics.

Confining ourselves to a consideration of the three remedies named, it is evident that a missing link must exist ere we can supply a satisfactory explanation of the *modus operandi.* Without some understanding covering the differences in effects produced, the lesson taught by pathology and experimental physiology becomes enigmatical. It is anomalous if not paradoxical; our therapeutic teachings might as well be a medley of contradictions, advocating a complete system of contraries, such as that white is black, and black, white.

These reflections have been recorded because of the true benefits which medical science may derive from an earnest and conscientious study of pathology in connection with experimental physiology. The contribution of Professor Caldwell, in another department of this number, along with the illustrations accompanying it, presents most forcibly the necessity of studying certain factors in metabolism which have, heretofore, received but slight consideration. Merely drawing attention to the facts relating to the different effects produced upon the liver when phosphorus is given internally and cantharides hypodermatically, while of moment, is simply a repetition of well-known truths, but there is something beyond this perfunctory explanation. For example, the microscope teaches that lethal doses of phosphorus produce fatty degeneration of the hepatic cells around the hepatic lobule. Drawing our analogy from the empirical use of caffeine, strychnine and electricity, above mentioned, we might assume that phosphorus in suitable doses would stimulate and improve these cells and thus become a useful hepatic tonic. And, indeed, it is; but we do not arrive at this conclusion by analogy, but by a course of reasoning strictly scientific, amply confirmed by clinical observation.

The conception of the therapeutic value of phosphorus in certain hepatic affections is based upon facts relating to cell-function easy of comprehension, besides being susceptible of microscopic demonstration. Although phosphorus is a normal constituent of the economy, when taken in excess, it does harm. We have seen that it deranges the metabolic processes of the liver by producing fatty degeneration of the cells; and if followed up, other changes of a similar character might be observed in other organs and tissues, owing to the affinity of this substance for oxygen. It would also be of interest if we could determine what effect, if any, phosphorus produces upon the nerve-supply of these hepatic lobules whose cells undergo degeneration; but we must not overlook the indisputable evidence furnished by the case under consideration.

Admitting the clinical fact—the therapeutic value of phosphorus—what is the scientific fact upon which it depends? Briefly, it may be translated as follows: Small doses of a drug which in lethal doses shows a specific tendency to modify unfavorably the function of certain cells, or certain structures, will, generally, produce a favorable change when these cells are diseased. In other words, when the hepatic cells cease to functionate properly; when the condition of the organism shows that waste products are not eliminated, indicated by passive congestion, jaundice, cardiac derangements, skin eruptions, pulmonary and bronchial affections, together with cerebral and mental complications, the exhibition of the minimum dose will be attended with the most favorable results—up to a certain point. Like arsenic and antimony, however, if long continued, it will eventually produce the identical results which it is desired to relieve, as we might naturally expect from its affinity for water and oxygen. It does not increase the eliminating function of the hepatic gland, only indirectly by its stimulation of cell-function, and even the effect of the lethal dose is limited (comparatively), being confined to the periphery of the lobule. On the other hand, cantharides, given hypodermatically, affects the central as well as the peripheral area of the hepatic lobule, an observation which may throw some light upon the peculiar effects produced by some of the more recent methods in medication (tuberculin, liquid organic extracts, etc.).

In the same manner we might trace the therapeutic virtues of cantharides in renal affections, viz.: By its influence upon the epithelium lining the convoluted tubules, through which the urinary solids are chiefly excreted. All these substances, foreign to the economy, produce irritation at the points of elimination, by acting as protoplasmic poisons. But most of them, likewise, in lethal doses, produce similar effects at other points. Thus, phosphorus produces fatty degeneration of the heart, destroys the red blood-corpuscles by its oxidizing influence. As will be seen, therefore, the medicinal dose must be properly gauged to secure therapeutic effects, and as Ringer says, "avoid the bad results."

The most striking proofs of this latter proposition are presented when we come to study turpentine, which has long been noted as an irritant of the renal structures. Renal hemorrhage and renal congestion are distinctly shown in the illustration; nevertheless, all authorities on therapeutics (Bartholow, Wood, Ringer, Brunton, Phillips, and others) agree that turpentine is an efficient and reliable remedy, not only in hematuria and renal congestion, but in nearly all cases of passive hemorrhage from mucous surfaces.

Would it be sufficient to fulfil the demands of scientific inquiry to say that the therapeutic value of the remedy depended upon this irritant property? Not quite, because the irritant action, from a therapeutic standpoint, is merely incidental. Its true interpretation will be appreciated only when we study the effects in the light of our knowledge of cell-life and cell-function. And it would be equally unsatisfactory to assume as a basis of medication that turpentine has a "double action," since the *action* is constant; that is, it is the same in kind, although differing in degree. The *effect* will vary according to the size of the dose and the length of time continued, and herein lies the secret of cellular-therapy, a therapy which is independent of analogy and answers every demand of scientific inquiry, since it is exact, natural and easy of comprehension.

INFANT MORTALITY IN LARGE CITIES.

The mortality occurring among infants in the large cities is something which may well create alarm in the minds of sanitarians and strike terror to the hearts of parents. During the week ending July 22, 1893, there were recorded in Philadelphia, New York and Boston a total of 2138 deaths, of which 1340, or 62 per cent., were children under five years of age. The daily average in the respective cities according to official reports is as follows:

	Total No. of deaths.	No. of children.	Percentage.	Daily average.
Philadelphia, ...	677	413	61	59
New York, ...	1257	793	63	113
Boston, ...	204	134	65	19
Totals:	2138	1340	63	191

In the light of our remarkable achievements in bacteriology and our knowledge of proper hygiene and sanitary measures, together with the best medical talent of the country in the immediate vicinity, who shall account for this lamentable condition, this almost hopeless paralysis of medical skill?

It is, indeed, a disgrace and a reproach to modern civilization.

A secular paper commenting upon these reports, remarks, "There is a screw loose in sanitary arrangements which turn out such dreadful results." From the same source we learn that these deaths are largely preventable, and that pure milk would put an end to one serious obstacle, while a pure water-supply would help to save life.

Now, these are exceedingly practical comments, and if the advice was followed, doubtless much good would result; but what shall we say to the directions given in the next sentence, in which "helpless and ignorant mothers," unable to employ a physician for their teething children, are advised to try the simple remedy of burning a little sugar and dissolving it in boiled water for the babies. And just here is the hitch; unfortunately, a great many helpless and ignorant mothers do this very thing, and since they fail or neglect to protect the sweetened water from the flies—which are most active poison-carriers—every teaspoonful of the contaminated water is just so much deadly venom. There is no drug in the entire materia medica that will counteract its deleterious effects. Of course, the poor are always more dangerously exposed than the well-to-do, but from this enemy the rich do not escape, and as to internal medication, the chances would be far better without it—provided the ingestion of poisons be not arrested.

That our criticisms are warranted will be seen by referring to a contribution on the treatment of *cholera infantum*, by Dr. J. F. Chmellicek (*New York Medical Journal*, June 29, 1893), of Detroit, Mich., who gives an interesting account of his rich experience in the tenement houses of New York during the summer of 1890 and the two years following. No less than 117 cases of genuine cholera infantum came under the observation of the writer, and although surrounded by the most unfavorable sanitary conditions, but three of the number died. The peculiarity about Dr. Chmellicek's method is, that he uses practically no medicine at all, and yet his mortality rate is but two per cent. in a disease where under ordinary conditions the rate is seventy-five per cent. or more.

In the course of his early experience, our author found that the flies were vibrating between the children's food-stuffs and decaying and decomposing vegetables, meat, dead horses and other animals in the putrefactive stage, and that in many cases the tables and ceilings were covered with them. An occasional peep into a sugar-bowl gave him quite a shock, as the little lumps were so surrounded by flies that they looked like black-berries, and the bowls outside and inside were black with the excreta. This gave him the clue to the situation, as it put him on the alert against the insidious poison. All babies were fed on boiled milk to which a small quantity of lime-water had been added, the milk being put in sterilized bottles and well-stoppered and kept entirely free from the inroads of the flies. Some claims are put forward in regard to the method of preparing the lime-water; for example, boiled water only is used and this in the form of a five per cent. glycerin solution, in the belief that such a combination will take up a larger quantity of lime than plain water. When we recall the fact that ordinary lime-water contains but one part to 800, it is extremely doubtful if doubling the strength will prove of much service when the dose is not more than a teaspoonful at intervals of two or three hours, which is about the amount a child would receive along with the milk.

It seems a work of supererogation to offer further argument or advice in the expectation that the profession will take kindly to such methods as we have hinted at; they will probably remain in a lethargetic state until aroused by public opinion, and then the apparent mystery of the multitudinous deaths in mid-summer will be cleared up. We say apparent mystery, because the half has not been told.

EDITORIAL NOTES.

Cholera Record.—At the time of writing the progress of cholera appears to be unchecked, although it is confined practically to the towns and cities of Continental Europe. The following cablegram shows the condition of affairs, July 31, 1893:

Official returns show a marked increase in the ravages of cholera in those parts of the Russian Empire where the disease is epidemic. From July 9 to July 22, there were in the Government of Padolia 1165 cases and 350 deaths, as against 499 cases and 122 deaths during the week preceding. In the Government of Orel, from July 16 to July 22, there were 234 cases and 91 deaths, as against 148 cases and 52 deaths during the previous week; in the Government of Toola 77 cases and 19 deaths, against 31 cases and 8 deaths in the preceeding week. In Moscow, from July 16 to July 22, there were 72 cases and 21 deaths.

The epidemic exists, though in less severe form, in the Governments of Viatka, Kazan, Riazan, Oofa and Simbeersk.

From Naples the report is, that from June 29, to July 28, there were 292 cholera cases registered in the city and 157 deaths.

Pure Water vs. Disease.—For the past two years the inmates of the Norristown Insane Asylum (Norristown, Pa.,) have suffered more or less from dysentery and other affections of the bowels, but since the water obtained from the Schuylkill has been discarded for that obtained from an artesian well on the premises all disorders of this class have abated, and thus is scored another point in favor of following the advice of Mr. Ernest Hart, of London, viz., to go to the fountain head if you want pure water.

"Devil's Advocate" in Medicine.—Mr. Gladstone electrified the country the other day by referring to his colleague, Mr. Chamberlain, as "Devil's advocate," whose function was, according to the Prime Minister, "to seize eagerly upon every human failing, and to misconstrue everything capable of misconstruction." And we have them in medical practice, and, perhaps it is just as well, for they will serve as a barrier against "combines," trusts, political log-rolling and all forms of schemes to advance the tricksters and cannibals (back-biters) who frequently sweep across the professional horizon.

Sunstroke and Heat Exhaustion.—The Board of Health of Philadelphia has recently issued some directions in regard to the emergency treatment of sunstroke and heat exhaustion, which are worthy of being placed upon record, as follows:

In heat exhaustion. which is caused by physical exertion and exposure to a high temperature, the surface of the body is cool the pulse weak and rapid, and the temperature below normal. In such cases, pending the arrival of a physician, stimulants should be given freely, and the hot bath be used.

In sunstroke, which is brought about by direct exposure to the power of the sun, there is a pain in the head, a feeling of nausea, great heat of the skin, a full and rapid pulse, and a very high temperature. The patient should be taken to a place where shade and air may be obtained, stripped to the waist and laid in a recumbent position. Cold water (ice water) should be poured upon the head and chest and wrists until consciousness returns. Ice should be applied to the head and the body rubbed with it; but if the skin be cold no ice should be applied. When practicable the patient should be put in a bath at 70° to reduce the temperature.

There are, of course, many precautions which may be taken against such attacks. Close-fitting and heavy clothing should not be worn; ice-cold drinks and alcoholic beverages should be avoided; sleeping rooms should be freely ventilated, and when symptoms of exhaustion are observable, rest and quiet should be sought at once. By strict attention to these simple rules and the maintenance of an agreeable temperament, leaving the thermometer to take care of itself, the hardest worker may pass through the summer unscathed.

GANGA AS AN INTOXICANT.—The Indian government has recently admitted that of all the cases of insanity produced by the use of drugs or spirits, by far the greatest number must be attributed to the use of ganga or hemp. Years ago the consumption and cultivation of the drug was prohibited in Burmah, but nothing has been done in India, and besides, in many sections of the country it is found growing wild.

A note of these facts is made at this time for the reason that the employment of hemp is gaining ground in this country, and with its more general use—in the doses recommended—unless timely warning is given of its baleful effects, our asylums will be too rapidly filled.

GALIPPE'S MICROBES.—At a late meeting of the French Academy of Sciences, Dr. Galippe made an interesting report covering a period of eight years' investigations into the origin, prevention and cure of calcareous deposits in any part of the body, but more especially renal calculi. He claims that bacteria are the cause or authors of the chemical decomposition resulting in the formation of gravel or stone. To prove his thesis correct he has experimented with saliva, and in the course of five years has collected hundreds of these little stones which are in all respects identical with the deposits found in the human body. He claims further, that the microbes which produce them (?) can be cultivated, and suggests that tuberculosis can be treated successfully by their employment. Now, while this is a very interesting little story, the probabilities are that it has no scientific foundation, since we know that human saliva always contains salts, and the fact that the microbes are found associated with the stones after evaporation is of no significance. We must not overlook the fact, however, that human saliva may contain poisonous material, first brought to the attention of the profession by Dr., now Surgeon-General, Sternberg, and therefore, physicians must be on their guard should they undertake to adopt M. Galippe's ideas in practice.

SPREAD OF TUBERCULOSIS.—The following item, clipped from the *British Medical Journal*, confirming as it does the investigations of Dr. Lawrence F. Flick, of Philadelphia, should receive wide circulation:

A family of nine occupied a house inhabited ten years previously by two tuberculous patients. A short time after, although the whole family had been in splendid health, three among them showed symptoms of tuberculosis. They used the same bed-room as the former tenants. Dr. Ducor had pieces of the wall paper examined, and dust from the ceiling and walls was also examined. In both cases the tubercle bacillus was found. The former occupants had been uncleanly in their habits; the sputa had dried on the walls, and the bacillus, as M. Vignal has shown, retained its vitality and was not destroyed by disinfection.

A NATIONAL SANITARIUM FOR CONSUMPTIVES.—In connection with the foregoing, relating to the spread of tuberculosis, should be mentioned the fact that an organization has been effected for the purpose of aiding consumptives in the early stages. This organization is known as the *American Invalid Aid Society*, and its object is to supply indigent persons with funds in the nature of a loan to enable them to secure the advantages of the necessary change of climatic surroundings, the money thus furnished to be returned when the patients have recovered sufficiently to be able to work. At the same time, the society, through the generosity of the public, expects to acquire lands and erect buildings for the purpose of accommodating those who may be deserving, and there is some prospect that such an institution might become self-supporting.

Another plan, advocated by Dr. Charles Denison, of Denver, Colorado, is, for those in whom tuberculosis develops, whose lives are insured, to make application to the respective companies for transportation and funds sufficient to make them comfortable in some climate adapted to their condition, in the belief that such a course would prolong the life threatened, and thus postpone the payment of the policy. While it would be somewhat difficult to decide among so many varied cases, the plan seems to be feasible, and no doubt it will receive the careful consideration of the actuaries and officers of our prominent insurance companies. But such an investigation, if properly carried out and careful records kept, would have important results in deciding the course to be pursued by the great army of un-insured.

Postponement of the Eleventh International Medical Congress.—A report has reached this country that in consequence of the threatening condition of the cholera in Italy the officers of the Congress have finally decided to postpone the meeting which was to take place late in September, at Rome, until April, 1894.

Correspondence.

A REVOLUTION IN ANTISEPSIS.—ELECTROZONE IN OPHTHALMIC PRACTICE.

EDITOR OF THE AMERICAN THERAPIST.

Dear Doctor:—Last month the members of the Board of Health of this city were invited by Professor A. E. Woolf, Ph. D., of New York, to inspect the preparation and use of a new and cheap disinfectant discovered by himself. The experiments were made in the Union League Club House in the presence of the Board and many members of the League and others who were invited to be present. The disinfectant is made by the action of electricity on sea or salt water. Not having any sea water at the time, salt was gotten from the kitchen of the League and a 3% solution made in a glass pitcher and into this solution electricity was passed for a few minutes. During this process the odor of chlorine was very marked. A piece of putrid meat was immersed for thirty seconds into some of this electrified solution and came out perfectly clean and clear of odor. Wood fibre and coloring matters were beautifully bleached in a few seconds. From experiments made in New York by Prudden, Biggs, and others, Dr. Woolf says that the bacillus of anthrax was killed in thirty seconds, and the bacilli of cholera and other contagous diseases were destroyed in less time.

In comparison with some other well-known disinfectants at the time, in all percentages, it was shown to be the most rapid and powerful in its action of them all by long odds.

The solution being composed of nothing but salt (sea) water, acted upon by electricity, is perfectly harmless and no danger arises from drinking it. Thinking it would be a good remedy in cases of sloughing tissue I determined to try it, and Dr. Woolf was kind enough to send me some made from sea water in his laboratory.

The first case was a bad *slough of the cornea* from injury of only two days standing, in which I instilled a few drops of the pure solution, *electrozone*, as it is called. It caused severe pain for at least ten minutes, and gave all the appearance and action of a strong astringent on the conjunctiva. Finding this too severe I diluted it one-half with fresh water, and instilled it into the eye three times a day for two days when all the sloughing process was entirely stopped.

The next case was *purulent conjunctivitis* of some days' standing, with the same success in the short time.

Then a case of *conjunctivitis neonatorum* was promptly relieved of the creamy pus discharge in a few days.

Then another case of *complete slough of the cornea* with free discharge was almost immediately benefited.

These are only my first experiments, and from all appearances I think it is the most rapid and thorough disinfectant and bactericide so far presented to the profession.

Dr. Woolf informed us that it has been very successful in the treatment of severe *throat diseases*, and he has known *gonorrheal discharge* stopped in twenty-four hours by its use.

At the same time that Dr. Woolf sent me the liquid he forwarded some to the Board of Health to be used in the Municipial Hospital, and it was at once tried by Dr. Welch the Physician in charge on a very bad case of *sloughing variola*, from which the odor was so dreadful that it was impossible for any one to remain in the tent with the patient but a few minutes. Dr. Welch reports to me that it *removed the odor very much*, but this was not a good case to experiment with, as the man was almost at death's door, really dying a day or two after.

The electricity generates chlorine, bromine, etc., in the process of decomposing the sea water, and these are well known disinfectants and microbe killers. Twenty five years ago v. Graefe recommended the use of chlorine water (aqua chlori) in the treatment of the several forms of conjunctivitis, more especially the purulent form, but it has been replaced by other things that appeared to be more effective. In the last few years Schmidt-Rimpler has again returned to the aqua chlori in all such cases, and I have no doubt he would be more pleased with this electrified sea water, as it is more active and certain. It is more concentrated, and the combination of the bromine must increase its effectiveness.

I think that this will be found an excellent remedy in *all cases of suppuration* and in various forms of *skin diseases* arising from a micro-organism. Its non-poisonous character should give freedom of experiments, and I call attention to this matter with the hope that it will be given a careful trial by the profession. I have no doubt that Dr. Woolf will furnish the liquid for such experiments as he so kindly did to our Board of Health and myself.

This electrozone, as it is named, is the same thing that the New York Board of Health has been experimenting with to purify the Croton water at Brewsters, N. Y., and which seems to have been so successful. (See an account of this in the July number of the AMERICAN THERAPIST, p. 32.)

In presenting this matter to the Board of Health by Dr. Woolf, it was for the purpose of city sanitation and not for any special use of the medical profession. His idea is to have cities lease plants for its manufacture for purifying the water, and disinfecting the streets and sewers, which can be so readily done by its cheapness of manufacture.

Very respectfully

July 29, 1893. P. D. KEYSER, M.D.

1832 Arch Street, Philadelphia, Pa.

CARBONATED WHEY.—By the use of frozen carbonic acid gas, carbonated whey can be produced and transported in the form of syphons for the use of the sick, or for use as a beverage. Butter treated in the same manner—by means of a pressure of six atmospheres—will remain sweet and pure for five or six weeks, retaining all its natural properties.

Current Literature.

MERCURIAL SOLUTIONS IN SURGERY.

From the cases reported I wish to draw the following conclusions :

I. There is danger of acute mercurial poisoning from the use of bichloride in vaginal or intra-uterine irrigation.

II. Where long continued irrigations are necessary, bichloride is dangerous and ineffective.

III. In all cases, where bichloride is used the physician should have in mind *all* the symptoms of mercurial poisoning and not be guided by any one of them.

IV. That the use of bichloride solution is contra-indicated except in syphilitic or other conditions where the constitutional effects of the salt or its corrosive action upon the tissue is desired.

H. B. Hill, M. D.

(Milwaukee Med. Jour., June, 23 1893.)

TREATMENT OF DIPHTHERIA.

The patient should be placed in as airy a room as possible, and the evacuations should be promptly disinfected by chlorine, carbolic acid or other disinfectant and removed from the room. Purity of air in the room, of course, is required, but right here I cannot lay too much stress upon the fact that in the ventilation, draughts of air through the room should be avoided on account of the liability to diphtheritic croup, which it must be remembered, causes one-third of all the deaths from diphtheria. The patient should be kept constantly in bed and the temperature of the room kept higher than in most maladies. Endeavor to maintain an equable temperature of 75° F., and keep the air moist with steam.

Local Measures.—The two indications in the treatment of diphtheria are to prevent the local development of bacilli and to combat the effects of the toxic materials which they produce. If we take the ground that diphtheria begins as a merely local process, then local treatment certainly would be rational at first, but, unfortunately, the practical results bear out the theory very imperfectly. An actual and complete destruction of the croupous exudate is scarcely possible and the attempt at its destruction is so difficult and disagreeable in a struggling child that all caustics or other applications to the throat, direct, may well be abandoned; but we do believe that at the commencement and later it is extremely desirable to disinfect the mouth and throat as thoroughly as possible. Although it has little effect upon the diphtheria itself, it is at least a factor in preventing secondary septic infection. Adults and older children should gargle frequently with disinfectant solutions, such as potassic chlorate, carbolic acid, two per cent. solution, or mecuric chloride, one to ten thousand. A spray apparatus for inhalations may be used for children too young to gargle, and a constant spray at the bedside, so as to load the inspired air with vapor for the very weak.

Nutrition.–All physicians of experience recognize the importance of the use of the most nutritious and easily digested food, and the preservation of the appetite, for diphtheria produces rapid destruction of the red blood-corpuscles, and loss of flesh and strength, and it may rapidly produce a stage of dangerous weakness. Indeed alimentation occupies the first place in general treatment, and the more severe the attack the more imperative the necessity to sustain the patient with nourishing food. Loss of appetite, that is, disgust for all kinds of food, is one of the most alarming prognostic signs.

Stimulants.—The same rule holds good in diphtheria as in other acute infectious maladies, that while mild cases do well without alcoholics they are required in cases of severe type, and should be given in large and frequent doses, whenever pallor and loss of appetite or loss of strength and flesh indicate danger from the diphtheritic or septic infection. If given early and frequently in grave cases, as for example, in one-half or one teaspoonful doses of bourbon whiskey every one-half hour, it does seem to have a tendency to render the disease more tractable. That intoxication is almost never produced in this disease by large and frequent doses of an alcoholic stimulant, is propably in part due to its rapid elimination from the system, but more to the nature of diphtheria.

INTERNAL MEDICATION. — The one drug which I regard as the most valuable of all remedies in diphtheria is the tincture of the chloride of iron. This appears to be the almost unanimous opinion of the vast majority of physicians of both hemisspheres to-day, after constant use of the drug for nearly one-half a century. Those who have not observed its good effects may have administered inadequate doses. FERGUSON examined the blood daily in twenty cases of diphtheria, and was astonished to find how rapidly the red blood-corpuscles were reduced in number, and those remaining presenting an unhealthy appearance. He believes that iron partially arrests this blood-change. It seems best administered in glycerin and water. In each case the attending physician should push it to the fullest extent, not interfering too seriously with digestion.

Next in importance I may mention corrosive sublimate, which is the most active and certain of the germicide agents used in medicine, whether locally or internally. In safe medicinal doses it is believed to penetrate every part of the body. My plan is to administer 0.01 gr. every hour to a child of from one to two years of age. By small and frequent doses we derive a local as well as systemic action. It may be given in the above doses for days with very little if any intestinal disorder and no stomatitis, but I believe we here posses a drug which in the past three or four years has been greatly misused, chiefly in continuing its administration long after its need ceased to exist, which must greatly enfeeble the system. Besides the above, We may mention chlorate of potash, digitalis, strychnine and turpentine. Regarding turpentine, I believe it to be the most beneficial in the laryngeal form of diphtheria. Previous to my attention being called to a paper read by my colleague, DR. KELLOGG, before the members of this society upon the use of turpentine in membranous croup, I had never employed the drug, and must confess not a single case of pseudo-membranous laryngitis under my treatmemt had ever recovered without operation. But thanks to DR. KELLOGG'S suggestions, I have had the extreme satisfaction of relieving six unmistakable cases in the past five months. Have used it in doses as large as a drachm every three hours for three days without any outward effects, but believe in order to be effectual it must be used in the incipiency of the disease.

I will not weary you further with discussing individually the many drugs so strongly advocated by certain authorities and equally decried by others. Suffice to say we have germicides in various forms for local treatment; we have judicious feeding, stimulants, iron, digitalis, strychnine and mercury for general constitutional treatment. The practitioner who possesses common sense and the necessary tact to gauge his patient's strength through the various stages of the disease; to apply his local and general treatment to the varying conditions of the case, will find the treatment of diphtheria as rational and satisfactory as that of any other disease; but to do this he must abjure so-called specifics and learn to treat his patient rather than the disease.

The nervous sequelæ of diphtheria are best treated with electricity (constant current), and strychnine. The latter, by good observers is considered the most efficacious nerve stimulant in the various forms of diphtheritic paralysis. In these sequelæ rest in bed and the avoidance of sudden exertion, especially when the heart's rhythm is disturbed.

When the larynx is involved, a steam tent may easily be arranged upon the bed, and the child may constantly breath an atmosphere saturated with steam, which can be impregnated with the vapor of the oil of turpentine.

When the signs of obstruction become marked, however, no time should be lost in resorting to either intubation or tracheotomy. Dr. Malone.

Milwaukee, Med. Journ., June 1893.

CHEMICAL EXAMINATION OF THE CONTENTS OF THE HEALTHY STOMACH.

The following conclusions seem to be warranted:

1. That proteids in solution have the power of attracting, and probably combining with, hydrochloric acid. 2. That this acid so combined, even if greater in quantity and strength, does not prevent more free HCl from dialyzing through. 3. Hydrochloric acid has no power of combining with carbohydrates. 4. If in one case the acidity outside be less and in another greater, the contents being much the same, the acidity inside does not vary in proportion. 5. That if the proteid varies in concentration, the acidity inside varies with it.

Some experiments were performed on a patient who was an adept at removing the contents of his stomach with a stomach-tube. He suffered from a neurotic dyspepsia in which the acidities present were nearly normal. After breakfast, consisting in turn of fish and bread, minced meat and bread, porridge alone and ripe fruit, the contents of his stomach were removed at frequent intervals, namely, at ½, 1, 1½, 2, 3, 4 and 5 hours after food. The acidity found in each case was exactly proportional to the proteids in the food, except in the last, where the excess of malic and citric acids obscured the amounts of hydrochloric acid. Particular attention was directed to the quantity of the free HCl, and the time at which it first made its appearance, the amount of the proteid-hydrochlorides and the presence of lactic acid.

The following deductions were made:

1. Free HCl is secreted by the stomach glands from the moment in which the food enters the viscus. 2. The time of the appearance of free HCl varies with the composition of the food, with its concentration, and with the state of the gastric mucous membrane. The time varies from the first half hour to the second or third hour 3. The acidity during the earlier part of gastric digestion is so small, consisting solely in combined acidity, that the amylolytic action of the saliva can go on for a short time. 4. The free HCl secreted at first combines at once with the proteids present in the food. 5. Proteid-hydrochlorides are less antiseptic than free HCl. 6. The acidities per cent. differ in the filtered and the unfiltered contents. The total and free acidities are lower in the filtered, the combined higher than in the unfiltered. 7. The total solids and inorganic salts diminish per cent. throughout. 8. The stomach-contents have no further digestive power unless there be some free HCl present. 9. The total acidity may vary from .108 to .36 per cent. the combined acidity from .072 to .324 per cent., and the free from .018 to .09 per cent., calculated in terms of HCl. 10. Heartburn cannot be caused by HCl combined with proteids. 11. The acidity of the stomach contents and the urine are often inversely proportional.

In laying down some rules for guidance in diagnosis and treatment founded on the results of these observations, the common practice of simply treating the local chemical disturbance without thought of the wider issues which were so often present is to be deprecated; the pain caused by acidity can be soothed better by proteids or by dilution of the contents with water than by the administration of alkalies.

A. L. Gillespie, M. D.

(Eng. Med. Press, Jan. 25, 1893.)

HERPES ZOSTER.

The indications for treatment are plain, —to quiet the pain, protect the vesicles, and support the strength. If the pain is severe administer opium internally or morphine hypodermatically. To protect the blebs and soothe the parts, a lotion of grindelia robusta, or dusting with starch, subnitrate of bismuth, oxide of zinc, lycopodium, or buckwheat flour to which may be added a little pulverized gum camphor, morphine, and cocaine.

Unna's favorite treatment is to apply a gelatinous paste made of sulphur and sulphate of zinc, or an aqueous solutions of ichthyol painted over the surface, or a strong paste of zinc and resorcin. I would suggest that thiol be substituted for ichthyol, being less toxic. Fabre lauds the early application of flexile collodion, to which may be added a few grains of morphine, menthol, or benzoin. This was my application locally in the case cited at the beginning of this article. The application of a strong galvanic current, the anode over the eruption and the cathode over the spine, has been of much value as a sedative. Beard and Rockwell mention a case of herpes zoster pectoralis, and one of sacralis, cured by the faradic current. They also state the cure of six cases of the frontalis variety with the galvanic current. They say nothing of the bronchial complication following this form of the disease, neither do they state why the faradic current was used in one class of cases, and the galvanic in the other. Smith has faith in wet cupping the spine, while others believe in "firing" it with a Paquelin cautery. Purdon uses ergot and iron internally; Thompson the phosphide of zinc in third-grain doses every three hours; Bulkley follows Thompson but adds nux vomica internally. The French use salicylic or arsenious acid, as recommended by Trousseau, with whom Kaposi agrees entirely. Piffard has found aconite and gelsemium of great value. Dr. Sturgis recommends rhus toxicodendron. Finney's case of bilateral zoster was treated, in addition to the local applications mentioned, by quinine, iron, and sulphate of magnesium. I used in my case the elixir of pyrophosphate of iron, quinine, and strychnine.

J. S. Leonhardt, M. D.

(The Epitome, April, 1893).

THE IMPORTANCE OF INORGANIC SALTS IN NUTRITION.

While the inorganic or mineral salts are well-known components of all food-stuffs, and are, likewise, important constituents of the various tissues and organs of the body, they have in themselves little or no potential energy to give them value. Consequently, their importance as a part of normal diet must be attributed to some other function than that common to the organic food-stuffs. Their importance in the economy, however, cannot be questioned, although it may be difficult to explain the exact part they play in the varied metabolic phenomena of the body. Their peculiar distribution throughout the animal organism is certainly suggestive of some specific function as characteristic of each individual salt or combination of salts. Why, for example, should there be such a preponderance of sodium chloride in the blood-serum, while potassium phosphate predominates in the blood-corpuscles and in muscle tissue, unless there be some peculiar and characteristic functional power resident in each? Without chlorides in the food there can be no production of hydrochloric acid for the gastric juice; without iron compounds there can be no construction of hemoglobin for the red blood-corpuscles, and without calcium salts the bony framework of the body could hardly be built up. But these are well-known facts, hardly needing comment. Less thoroughly understood is the important part played by the inorganic salts of the food in regulating and modifying many, if not all, of the metabolic phenomena of the body. Without question, the mineral constituents of our daily food are as important in their way as the more bulky organic constituents, not indeed for any potential energy they contain but for the stimulating and controlling power they exert upon the varied nutritional processes of the animal body. Calcium phosphate, for example, is unquestionably just as important a factor in the life of the highly developed human organism as it is for the life of unicellular organisms, and this irrespective of the part played by this salt in the formation of the bony skeleton. All biologists are familiar with the need which micro-organisms have for calcium phosphate; it is an invariable constituent of all culture media, and without it growth and development become an impossibility.

In the diet of health and disease, mineral matter is to be recognized as an important factor, and without doubt much of the dietetic value attributed to meat broths, extracts, soups, and even milk is due to the contained inorganic salts. Thus Dujardin-Beaumetz maintains "that the most suitable diet for febrile maladies is one that contains only a very small quantity of albuminous matter, and that it is the possession of *saline* and tonic principles, dissolved in a large amount of water, which constitutes the chief recommendation not only of broths and beef-tea, but also of milk.*" The argument so frequently advanced that mineral matters, as the phosphates, are of little or no real value because they are wholly eliminated in the urine and fæces has no weight, since as a rule a far larger quantity of salts is consumed with the food than is needed to replace those of the tissues, and secondly because such power as they possess is apparently the result of their mere presence in the tissues and organs. In other words, they control and direct the metabolic activity going on about them, acting perhaps as a chemical stimulus to muscle and nerve tissue, and thus indirectly to the various operations in which these tissues are involved.

(Dietetic and Hygienic Gazette, June, 1893.)

---

* Yeo. "Food in Health and Disease," p. 355.

ECLAMPSIA GRAVIDARIUM ET PARTURIENTIUM.

From an interesting and instructive paper with the above heading, which contains some original suggestions on this topic, by Dr. J. Lindsay Porteous (*Medical News*, Feb'y 11, 1893), we have prepared the following diagrammatic illustration:

I. HYSTERICAL.

Characterized by hysterical symptoms—globus.

II. EPILEPTIC.

(a) *Premonitory:* Vague sensations; irascibility of temper; lowering of temperature from vascular contraction in extremities; spasmodic muscular contractions, optical illusions, hallucinations.

(b) *Paroxysmal:* (*Petit mal.*) Unconscious state; staring; contraction of facial muscles; movements as of swallowing; simply unconscious (Reynolds); loss of perception and volition.

(*Haut mal*).—Face-pallor; loss of consciousness; cerebral and spinal congestion; laryngismus and trachelismus; peculiar cry; tonic muscular contractions (extremities); visceral contractions (bowels, womb, bladder, etc.); cyanosis, coma; fatigue, headache, sleep; albuminous urine.

(c) *Inter-paroxysmal:* Impaired nutrition, excitable; loss of memory, melancholia; disordered digestion and circulation (not necessary concomitants, or peculiar to epilepsy).

III. UREMIC.

Due to non-elimination; mechanical (?), chemical (?).

IV. APOPLECTIC.

Urine diminished, highly albuminous; general convulsions at outset; coma develops slowly; sudden onset; face flushed; increased arterial tension; embarrassment of respiration; coma sudden, with dilatation of pupils; relaxation of sphincters; unilateral paralysis; sub-normal temperature followed by rise.

V. MICROBIC.

Caused by a micro-organism, (first announced March 25, 1892). Absence of the other characteristic symptoms.

Book Notices.

Recent Developments in Massage: Historical, Physiological, Medical and Surgical. By Douglas Graham, M. D. Paper 12mo. pp. 128. Detroit, Mich.: George S. Davis, 1893. (Price 25 cents.)

The author states, that this work is intended mainly as a supplement to his well-known treatise on massage. It contains some account of late experiments and investigations together with rather copious quotations from the recent literature of the subject. The writer as a rule disclaims responsibility for the statements quoted, many of which have evidently emanated from ultra-enthusiasts.

Chapter II on "physiological effect of massage upon the muscles," and chapter III on "massage in muscular rheumatism and neuritis" are well written and of some scientific value. Judicious remarks are also made on the treatment of sprains and contusions; but when it is gravely proposed to treat incontinence of urine, transverse fracture of the patella, and chronic diarrhea by massage, the conservative practitioner is reminded of the eye-strain men and the electro-therapeutists, not to mention other melancholy examples of misplaced confidence.

Few things do more to retard the progress of legitimate therapeutics than unwise attempts to apply new remedies or new methods to pathological conditions to which they are not adapted.

While this book is not wholly worthless, it cannot be said to have great value; and it might very properly have been condensed within the limits of an ordinary journal article. O. H. M.

A Handbook of Local Therapeutics. Edited by Harrison Allen, M. D. Cloth, 8 vo., pp. 505. Philadelphia: P. Blakiston, Son & Co., 1893. (Price, $4.00).

We have before us a work devoted entirely to the employment of local medicaments, and as recent developments have shown the desirability of asepsis and the demand for antisepsis, the appearance of the book is timely. Nearly all of the approved remedies are considered in alphabetical order, and the instructions covering their application are in accordance with modern methods. The book fills a niche in medical literature which the text-books fail to supply, and no doubt will be favorably received by the profession since it appeals alike to the specialist, the surgeon, and the general practitioner. There is but one objection which can be offered —*i. e.*, that it will have a tendency to magnify the importance of local treatment at a time when scientific investigation points to the need for a more careful study of the metabolic processes in order to combat successfully local disturbances. Perhaps, realizing this under-current in professional thought, the authors have wisely advocated measures that command themselves by their conservatism, and, therefore, the rising generation of specialists will depend less upon topical medication while attempting to remove the causes of disease by the judicious employment of constitutional remedies. The department of Surgery is covered by Dr. Richard H. Harte; that of Diseases of the Skin by Dr. Arthur Van Harlingen; Diseases of the Ear and Air-Passages is considered by Dr. Harrison Allen, the Editor; and Diseases of the Eye by Dr. George C. Harlan, all of Philadelphia.

Reference and consultation is rendered convenient by the addition of a complete index of remedies and a copious index of diseases, and from a mechanical standpoint the book is all that could be desired.

The Year-Book of Treatment for 1893 (Ninth year). A Critical Review for Practitioners of Medicine and Surgery. Cloth, small 8 vo., pp. 496. Philadelphia: Lea Brothers & Co., 1893. (Price, $1.50).

As the digest is indispensible to the lawyer, the concordance to the minister, the ledger to the merchant, and the daily paper to the politician, so the year-book, annual, summary, retrospect, epitome, or what-not becomes a necessity to the progressive physician. Time was when the ordinary "doctor" could close the doors of his book-case and leave unopened his medical journals from one year's end to the other, but the present activity in affairs medical, and professional rivalry, require that the cortical cells shall have greater freedom and more exercise if it is desired to keep pace with the procession.

The fact that all the contributors to this volume are English should be a recommendation rather than a disadvantage, since it enables American readers to become familiar with British methods and thus tends to cement friendships through literary intercourse. Well-known authorities to the number of twenty-two cover the whole field, among whom may be mentioned, Sir Archibald E. Garrod, on gout and rheumatism; diseases of the kidneys, diabetes, etc., by Dr. Charles Henry Ralfe; diseases of the stomach, intestines, liver, etc., by Dr. Robert Maguire, either of the contributions being worth the price of the book. In addition to these should be mentioned excellent chapters by others; Dr. J. Mitchell Bruce discusses diseases of the heart and circulation; Dr. Sydney Phillips, infectious fevers; Dr. Dudley Buxton, anesthetics; Dr. Malcolm Morris, diseases of the skin; and the summary of the therapeutics for the year is by Dr. Walter G. Smith. Taking it as a whole it is a very desirable acquisition to the physician's library and may be studied with profit.

PUBLICATIONS RECEIVED.

Biologic Therapeutics: The Treatment of Myxedema and Other Diseases by the Use of Certain Organic Extracts. Clinical lecture by HECTOR W. MACKENZIE, of London, England. Reprint, 1893.

A Temporary Change in the Axis of Astigmatism. By GEORGE M. GOULD, A. M., M. D., of Philadelphia. Reprint, 1893.

On the Proportion of Sulphur in the Human and Animal Tissue. By Prof Dr. HUGO SCHULTZ, of Greifswald, Germany. Reprint, 1893.

A Contribution to the Treatment of Pulmonary Tuberculosis with Professor KOCH'S Tuberculin. By CARL VON RUCK, M. D., of Asheville, N. C. Reprint, 1893.

The Spelling of Some Medical Words. By GEORGE M. GOULD, A. M., M. D., of Philadelphia. Reprint, 1893.

"The Medical Press." By GEORGE M. GOULD, A. M., M. D., of Philadelphia. Reprint, 1893.

Milk Legislation: Variability of Milk Solids; Honesty No Safe-Guard; No Sanitation in "Legal Limits." By GEORGE ABBOTT, of Philadelphia. Reprint, 1893.

How to Avoid Contracting Tuberculosis (Consumption). Published for gratuitous circulation by the Pennsylvania Society for the Prevention of Tuberculosis. (Tract No. 1.)

How Persons Suffering from Tuberculosis Can Avoid Giving the Disease to Others. (Tract No. 2). Published by the same Society.

An Estimate of the Value of Peroxide of Hydrogen, in the treatment of some special forms of disease and surgical cases. By CHARLES H. MERZ, A.M., M.D., of Sandusky, Ohio. Reprint, 1893.

Quarantine Administration at the Port of Philadelphia. From the Annual Report of the Board of Health of the City and Port of Philadelphia. Philadelphia, 1893.

Typhus Fever as Met with in Mexico, with special reference to its treatment. By DAVID CERNA, M.D., Ph.D., of Galveston, Texas. Reprint, 1893.

Double Congenital Dislocation of the Lens. By GEORGE FRIEBIS, M.D., of Philadelphia. Reprint, 1892.

Points of Similarity between Us and Homeopathic Physicians. The annual address of the President of the Philadelphia County Medical Society for 1892. By JOHN B. ROBERTS, A.M., M.D., of Philadelphia. Reprint, 1893.

Mineral Waters. Reprint from the Pacific Medical Journal, 1893.

Some Features of the World's Columbian Exposition. Pamphlet, Philadelphia, 1893.

The Necessity for Early Recognition and Treatment of Suppurative Diseases of the Tympanum —and their relation to cerebral complications. By S. MACCUEN SMITH, M.D., of Philadelphia. Reprint, 1893.

The Radical Cure of Aural Polypi. By S. MACCUEN SMITH, M.D., of Philadelphia. Reprint, 1893.

Papoid Digestion. By R. H. CHITTENDEN, Ph.D., of New Haven, Conn. Reprint, 1893.

The Primary and Secondary Action of Drugs. By BOARDMAN REED, M. D., of Atlantic City, N. J. Reprint, 1887.

The Double Action of Medicines as illustrated by Digitalis. By BOARDMAN REED, M. D., of Atlantic City, N. J. Reprint 1888.

The Administration of Milk by Accurate Dosages. By THOMAS G. MORTON, M. D., of Philadelphia. Reprint 1893.

Ice in the Treatment of Acute Pneumonia. By THOMAS J. MAYS, M. D., of Philadelphia. Reprint 1893.

The Clinical Value of repeated, careful correction of manifest refractive error in Plastic Iritis. By CHARLES A. OLIVER, A. M., M. D., of Philadelphia. Reprint 1893.

Twenty-seven years addiction to opium—Recovery,—Relapse. By J. B. MATTISON, M. D., of Brooklyn, N. Y.

Trional, the new hypnotic: Its use in Narcotic Habitues. By J. B. MATTISON, M.D., of Brooklyn. Reprint, 1893.

The Etiology of Narcotic Inebriety. By J. B. MATTISON, M. D., of Brooklyn. Reprint, 1893.

The Curability of Narcotic Inebriety. By J. B. MATTISON, M. D., of Brooklyn. Reprint, 1893.

Cocaine Inebriety. By J. B. MATTISON, M. D., of Brooklyn. Reprint 1893.

The Mattison Method in Morphinism. By J. B. MATTISON, M, D., of Brooklyn. Reprint, 1893.

CATALOGUES RECEIVED.

University of Pennsylvania. Catalogue for Session of 1892-93, and Announcement for Session of 1893-94 (128th Annual Session). Department of Medicine. (Philadelphia).

Medico-Chirurgical College of Philadelphia. Announcement, 1893–94.

Western University of Pennsylvania. (Part IV). Western Pennsylvania Medical College. Sessions 1893–94. (Located in Pittsburgh, Pa.)

The Jefferson Medical College of Philadelphia. Register for 1893. (69th Annual Announcement). Session 1893–94.

Annual Announcement and Catalogue: College of Physicians and Surgeons, Baltimore, Md.

Bellevue Hospital Medical College of the City of New York. Circular of Information, 1893–94.

Stearn's Dose-book: Compiled especially for the use of Physicians and Pharmacists. (Detroit, Michigan, 1893.)

Acometric Syllabus, containing a list of diseases and some indications which may be met in each by the use of diurnules and diurnule tablet triturates. By J. V. Becelaere, M. D., of Detroit. 1893.

Microscopes, Achromatic and Apochromate Objective, Microtomes, Hemometers, etc,, made by CARL REICHERT, of Vienna. From Messrs. QUEEN & Co., of Philadelphia.

Prices and Illustrated Catalogue of Microscopes, Microscopical Accessories, Objectives, Mounting Materials, Objects, Cabinets and Books etc., made and imported by Messrs. QUEEN & Co., of Philadelphia.

Illustrated Catalogue of Surgical Instruments, manufactured by Messrs. D. W. KOLBE & SON, of Philadelphia.

Miscellany.

SOPHISTICATING BUTTER.—A new swindle has appeared in the form of a "gilt-edged butter compound," which is recommended to farmers for increasing the supply by artificial means. The true nature of the compound is said to be a digestive ferment, probably pepsin, which produces an emulsion with the butter, thereby enabling it to hold about fifty per cent. of water instead of 16 per cent., the normal proportion. To all appearances the butter prepared in this manner is much the same as ordinary butter, except that it is of a softer consistency, and readily undergoes chemical changes, which are probably of a nature to forbid the use of the sophisticated product.

The method of procedure is extremely seductive. To a pint of milk, a single pound of soft butter is added, when after proper manipulation two pounds of butter are produced, only ten or fifteen grains of the "compound" being necessary to produce this wonderful transformation.

THE TROMOMETRE.—A novel apparatus for testing the degree of nervousness in a patient, has been invented by Dr. Quintard, of Angiers. The instrument includes a long needle, bent at the end, and a screw-plate containing twenty holes of different sizes. The two parts are introduced into the circuit of an electric battery and the patient taking hold of them is instructed to introduce the point of the needle into the various openings in succession, beginning with the largest. When the needle is placed in the exact centre, a bell rings, and from this a record is prepared.

The immoderate use of coffee, chronic poisoning with lead, mercury or alcohol, violent exercises, convalescence after severe fevers, produce a tremula which is more or less pronounced. The use of the tromometre gives to those directly interested a chance to watch the progress or decline of a nervous disease and its symptoms under the influence of medical or hygienic treatment. Marksmen on the eve of a contest, surgeons before performing a delicate surgical operation, can test the steadiness of their nerves with this ingenious apparatus, which affords to laymen as well an interesting study for the collection of record matter of an entirely new phase.

ELECTRICITY AND PLANTS.—As bearing upon the interesting question of the influence of electricity upon vegetation, the results of a series of experiments recently made by Professor BONNIER, of the Paris Faculty of Sciences, in this direction have special value. M. BONNIER carried out his observations in connection with the electric pavilion of the Central Market, investigating the influence of the electric light, both continous and intermittent, upon the structure of trees. His conclusions are: 1, Considerable modification of structure may be produced in the leaves and young stems of trees by continuous exposure to the electric light; 2, it is possible by means of this illuminant for the plant to respire, assimilate and transpire day and night uniformly; the plant would, however, seem to be incommoded in its growth by this continuity and its tissues have a simple structure; 3, intermittent electric light—12 hours darkness in 24—produces in the various plant organs a structure which resembles more closely the normal structure than that produced by the uninterrupted electric light.

Some years ago, Dr. C. W. SIEMENS conducted experiments in a greenhouse illuminated at night by electricity, which led him to the conclusion that plants required no night rest, but developed faster when exposed to the light night and day. The latter experiments tend to prove that although the faster development is true, it is made at the expense of the vitality of the plant, which would generally be too feeble to bear fruit and produce seed when forced under continuous light. The conclusion of M. BONNIER is, therefore, that the provision of nature whereby vegetation, in common with animal life, is given a period of darkness and rest in each 24 hours is the condition most favorable for its healthy development.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, SEPTEMBER 15th, 1893. No. 3.

Original Articles.

THE PRINCIPLES OF IMMUNITY AND CURE IN INFECTIOUS DISEASES. *

By VICTOR C. VAUGHAN, M. D.

There must be three factors in the production of immunity in an animal naturally susceptible.

First: There must be an inciting or immunizing substance introduced into the body. We are acquainted in a rough manner with the nature of some of these substances, such as the venom of the snake, the vegetable proteids, abrin, ricin and robin, and certain bacterial proteids. I call these proteids and wish it to be understood that I do so tentatively, and that I recognize the fact that the exact chemical nature of none of them is known, but, for the present, we may call them proteids. For reasons already given, I believe these proteids which induce immunity to belong to the class of nucleins. I am aware of the fact that physiological chemists do not always class the nucleins among the proteids, but among the albuminoid bodies. These substances, be they nucleins, proteids, or albuminoids, have the property when introduced into the bodies of certain animals in certain amounts and under certain conditions, of so stimulating the activity of certain organs in the animal that these organs produce and supply to the blood an antidote to the substance introduced.

Secondly: The organs whose activity is stimulated by these immunizing agents are those which manufacture nucleins, such as the spleen, thyroid gland, and bone marrow.

Thirdly: The antidotal substance is a nuclein. The kind and amount formed will depend upon the nature of the inciting agent and the condition of the organ, or organs, acted upon.

I use the word "nuclein" in a broad sense, including the true nucleins, nucleinic acids and nucleo-albumins. By the term "nuclein" I mean that part of the cell which, under normal conditions, is endowed with the capability of growth and reproduction, which assimilates other proteids and endows these assimilated substances with its own properties. It is that part of the cell which gives it its individuality. Whether these nucleins, while in solution and devoid of morphological unity, are still capable of assimilating allied bodies or not, cannot, at present, be positively determined. There is no *a priori* reason, so far as I know, of denying this: These different nucleins, that of the bacterial cell and that of the blood, may be isomeric bodies, one of which may be designated as the A, and the other as the B compound, and one of these may, by simply causing a re-arrangement in the atoms within the molecule of the other, assimilate the second. There are some good reasons for believing that certain proteid bodies contain a cyanogen group, and Kossel has shown that nuclein contains a basis substance, adenine, which has the formula $C_5H_5N_5$, and is a polymer of hydrocyanic acid; and Gautier has synthesized another constituent of nuclein, xanthine, by simply heating hydrocyanic acid in a sealed tube in contact with water and a little acetic acid. Indeed, the readiness with which cyanogen bodies polymerize is well known to chemists. Thus liquid chloride of cyanogen, CNCl, converts itself spontaneously under certain conditions into solid chloride of cyanogen, $C_3N_3Cl_3$; cyanic acid into cyanide; methyl cyanic ether, $C_3O_3N_3(CH)_3$, and cyanogen into paracyanogen.

---

* Concluding summary of a paper presented to the Therapeutic Section of the first Pan-American Medical Congress, held at Washington, D. C., September 5, 6, 7, and 8, 1893.

I do not mean to say that the process by which a nuclein assimilates another proteid is as simple as would be indicated by these examples, but they may suggest something of the nature of the chemistry of assimilation. We may suppose that when an alpha- and beta-nuclein are brought together, one will assimilate the other, and which one will absorb the other will depend upon the relative strength or vitality possessed by them, and in measuring this strength several things must be taken into consideration. A vaccine has less of this power of assimilation than a germ of full of virulence, and a nuclein in a sterilized culture less than either of the others. An organ which has once been stimulated by a given excitant responds more quickly the second time to the same excitement, provided that the interval of time is not too great. This explains the gradual loss of acquired immunity

Again, an organ which is stimulated by one excitant may not be responsive to another, and this accounts for the fact that an animal rendered immune to one disease remains susceptible to another.

The poison which is introduced is destroyed by the activity of certain cells. In order, however, to accomplish this destruction, it is probably not necessary that the poison should come into contact with the cells. For instance, the activity of the spleen has been found necessary, as the experiments of Tizzoni and Cattani have shown, to the production of immunity from tetanus. We can suppose that the process of immunizing an animal proceeds in something like the following manner: The modified virus of tetanus is introduced into some distant part, in some unknown way, the spleen is stimulated to action and secretes a nuclein which is carried partly in solution, partly in the form of multi-nuclear cells, to the invaded part of the body, and the tetanus poison is converted into the nuclein coming in contact with it or otherwise rendered inert. Later, a larger quantity of this tetanus poison is introduced, and now the spleen acts more promptly and energetically than before. This promptness and energy of action is increased by exercise, and, finally, an amount of tetanus culture of full virulence, sufficient to kill an animal whose spleen has not been subjected to this training, may be introduced without ill effect. On this theory the production of immunity consists in a special education of certain cells, and artificial immunity becomes essentially cellular.

The difference between immunity and tolerance I conceive to be this: In the former, the cells of certain organs become aggressive; a special function is developed; the poison introduced is destroyed. In tolerance, there is no aggressive action on the part of any organ; there is no development of special function; the poison introduced is not destroyed; it only fails to kill.

Now, what can be said about the relation between the principles of immunity and those of cure? Are they the same? I think that there are essential differences. In the first place, the substance with which immunity is induced are not applicable in the production of a cure. They are already in the body and have failed to stimulate the nuclein-forming cells in such a manner as to cause their own destruction. To introduce more of the bacterial poison after the invading virus has established itself in the system will only strengthen the invader. No disease, after being well developed, has been cured by the administration of the bacterial poison. I believe that vaccination, first performed after exposure to smallpox, may altogether prevent the development of the disease, or may modify it; but this is not cure. Of what service would vaccination be when the body is already covered with smallpox pustules?

Some experimenters have found that if a certain substance be introduced into the animal simultaneously with, or a few minutes, or at most a few hours, after the virulent germ, the disease either does not appear, or it appears later than it does in control animals, and they have claimed that these are instances of cure. Thus, Behring speaks of *curing* diphtheria in guinea-pigs with iodine trichloride. He injected this "curative" agent immediately after inoculation, and at the place of inoculation, and found that of the animals, thus treated, some, although they sickened, did not die. He may have induced immunity in this way by the action of the chemical agent on the bacterial proteid, though this has been experimentally denied by Tizzoni and Cattani; but certainly such results do not deserve to be designated as cures.

Koch attempted to cure tuberculosis by introducing the proteid of the specific bacillus into patients. Theoretically this was a mistake, because this proteid in living, virulent form, is already present in the patient, and, indeed, is the cause of the disease. Immunity to tuberculosis has been tested by nature in each tuberculous person and has been found wanting; some step in the process has failed; either the poison was first introduced into the body in a form too virulent to be resisted, or the cells of the body have been unable to act with normal energy.

If I am right concerning this difference between the agents of immunity and cure, to what source shall we look for curative substances in the infectious diseases? Either we must introduce into the body some germicide formed by other cells, or we must employ other agencies for the purpose of stimulating the nuclein-forming cells. Blood-serum therapy offers the first of these alternatives, and now that we know that the germicidal constituent of the blood is a nuclein, blood-serum therapy will give place to nuclein-therapy, and with the latter there is more hope of accomplishing good results, because it reduces the size of the dose.

I say that the germicides from which we now hope for good results from treatment must be of cellular origin. The experience of the medical profession for the past twenty years has demonstrated that there is no known chemical substance which can be introduced into the animal body without harm in sufficient quantity to effect a cure by its germicidal action. Time after time, the discovery of a non-poisonous, powerful germicide has been announced, but experience has invariably shown, either that the substance is poisonous, or that it is not germicidal. This universal experience of the profession has been scientifically demonstrated to be a fact by the researches of Behring, who, after a large number of experiments, came to the conclusion that, computed on the body-weight of the animal, antiseptic substances reach a fatal dose when injected in an absorbable form under the skin in one-sixth the amount which is necessary to prevent the development of the anthrax bacillus in the blood-serum.

Now that we have learned that the animal body itself generates a germicide, more powerful in its action than corrosive sublimate, and since we know how to increase the amount of this substance in the blood, and can isolate it and inject it into other animals, renewed hope comes to us.

I have stated that one advantage which nuclein-therapy will have over blood-serum therapy is to be found in the fact that it may enable us to employ the active substance in larger doses. We have seen all along that quantity as well as quality must be taken into consideration in the production of both immunity and cure, and that the effects are in proportion to the quantity. Even the ultra bacteriologist does not now claim that a single bacillus of the most virulent kind introduced into the most susceptible animal will cause disease. The animal body is no longer to be regarded as a mere culture-flask in which germs grow without meeting with the slightest resistance; and after the germs of tuberculosis have gained the ascendency, and are multiplying by the million daily, possibly hourly, we need not hope to find a tuberculin which in doses of a fraction of a milligram will, within a few days, or within any period of time, destroy this great mass of living, growing poison. The miraculous effects of small doses need not be looked for; these will have no place in the therapy of the infectious diseases.

If it be possible to kill the germs or destroy the bacterial poison after the development of an infectious disease, by the introduction of a germicide, or a toxicide, formed by other cells than those of the infected person, then we may expect that cures for these diseases will be found in the near future. Experimentation offers the only means of ascertaining whether or not this be possible. The recently reported cases of tetanus with the anti-toxine of Tizzoni and Cattani, obtained from the blood of animals which have been rendered immune to this disease, are in accord with this principle.

If nuclein-therapy fails us, we must strive to find agents which will stimulate the nuclein-forming glands. This, probably, is the chief factor in the climatic treatment of tuberculosis, but so far as our knowledge of medicinal substances which will accomplish this result goes, we are practically and wholly ignorant. The field of special cellular therapeutics lies before us, a *terra incognita.* Important discoveries in this direction are not likely to be made soon.

I have used the word "cure," limiting its meaning to the destruction of germs or other poison. If we could destroy all the bacilli in the body of a tuberculous patient, would a cure be effected? If we ever reach this desideratum, nature will probably do the rest.

I have thus imperfectly placed before you certain ideas which have been for some years slowly formulating in my mind. They have enabled me to demonstrate, first, that the nucleins are powerful germicides and, secondly, that the germicidal constituent of blood-serum is a nuclein. Whether or not they will lead to farther elucidation of the perplexing problems of immunity and cure I cannot predict.

Ann Arbor, Michigan.

SUPPURATING APPENDICITIS.

By Hal C. Wyman, M. D.,
Professor of Surgery, Michigan College of Medicine and Surgery, Detroit, Michigan.

The case reported herewith is that of Ray Whitmore, son of Dr. Whitmore, of Allen, Hillsdale County, Michigan. The boy is ten years of age, and had been in perfect health until Thursday, May 4, 1893, when he first began to complain of pain in the right inguinal region over the appendix vermiformix. The bowels had been constipated since May 1st. The pain steadily increased on Thursday, Friday, and Saturday, when his father called Dr. Wood, of Quincy, to attend him. Saturday night Dr. Wood diagnosticated appendicitis and telegraphed me on Sunday. On this day, Dr. Harris and Son, of Hillsdale, saw the boy. He had fever (temp., 101° F.), dry skin, quick pulse, no chills, but steady pain in the region of the appendix with tenderness. I saw him for the first time on this date, when the symptoms were said to be the same as the day before, but with the addition of more pain, some fever, although no vomiting had occurred as on the previous day. Dr. Harris thought him much improved. Injections had failed to move the bowels which were constipated for the past week.

Status præsens.—Pain and tenderness in the right inguinal region; tumefaction distinctly felt, deep in the right pelvis; slight visible swelling in the right inguinal region; pulse, 110; tongue, white; respiration slightly accelerated; expression stupid, due to opiates which had been freely given to control pain.

Diagnosis: Suppurating appendicitis.

After aseptic preparation and chloroform anesthesia, by Dr. Wood, I cut down through the abdominal walls, making an incision two inches long in front of the right anterior superior spinous process, midway between it and the median line. When dividing the transversalis muscle, a soggy, edematous area was discovered, and the fascia bulged into the wound. Incising this, four ounces of pus, having a strong, fecal odor, spurted from the wound. The opening was dilated and the abscess-cavity cautiously explored with the finger. The appendix was not removed. The pus-cavity was cleaned with peroxide of hydrogen and loosely packed with iodoform gauze (10 per cent.), covered with cotton and secured by a many-tailed bandage.

This scrap from my note-book is transcribed for the purpose of showing some features of suppurating appendicitis, but it would be incomplete and misleading if the subsequent history should not be related. The patient progressed favorably for ten days after the operation, when his fever again rose and he became very restless. His abdomen became tympanitic; respiration short and labored; pulse small and irregular. I had left particular instructions not to give anodynes, fearing that it might mask the symptoms and retard the process of repair, but his sufferings were so severe that his father, after consultation with Dr. Wood, thought best to give morphine enough to quiet him until I could see him again.

On arriving at the patient's bedside I found that the gauze had been removed daily, but there had been no discharge since two days after the operation. The wound looked healthy; exploring it with my finger, it was found to be only about one and a half inches in depth. I could feel a boggy, fluctuating mass beneath it, extending deep into the pelvis. The parts were carefully dissected until this cavity was opened and good drainage re-established. The operation greatly reduced the patient's strength and he was removed from the operating table to his bed in a very weak condition. For the next few days digitalis was given him freely, and he gradually regained his strength, but only after the most careful feeding and appropriate stimulation. The final complete closure of the wound followed, and restoration to health was uninterrupted.

The father called on me a few days ago and said his son was well and vigorous as any ten-year-old boy in the village.

46 Adams Ave., W., Detroit.

*TUBERCULOCIDIN IN PULMONARY TUBERCULOSIS.**

By H. G. McCormick, M.D.

I take for granted that anything which offers us better results in the treatment of pulmonary tuberculosis will prove interesting to this society, and this is the only apology I have to offer for calling your attention to this much debated subject.

Case I.—On October 28, 1892, William W. called at my office, stating that he had been sick and unable to work for some weeks, and complained of a harrassing cough, with great weakness and loss of flesh. He had been treated by another physician for some time, but stated that he was rapidly growing worse. I made a diagnosis of tuberculosis of the lungs and treated him with ordinary remedies until, finding that he was gradually growing weaker, I advised him to enter the Williamsport Hospital for the purpose of being treated with tuberculocidin, but held out for him but little encouragement that this would prove a benefit. He entered the hospital November 22, 1892. The resident physician made the following note:

---

* Read before the Lycoming County (Pa.) Medical Society, at the July (1893) meeting.

"William W., age 42, occupation, a carpenter. About eight weeks ago cough began, with weakness and general prostration. Cough in the evening caused great effort; also in the morning. About four weeks ago had a hemorrhage; lost about one half pint of blood. Came on in a fit of coughing during the night. Family history is excellent. About four years ago had pneumonia; lost about seven weeks. After this trouble was very weak and caught cold on slightest exposure. His temperature on entering was 99.6° F. in the morning and 100.4° F. in the evening. His pulse was 96; his respirations 26. He had but little appetite; thin and emaciated, with night-sweats every night; his weight was 103 pounds.

In order that there might be no dispute as to the diagnosis in this case, I had the patient examined by Drs. Nutt, Connolly, Bell and Hill, and they all agreed in the following diagnosis as furnished me by Dr. Hill:

"General appearance: Emaciation well marked; retraction of skin over cheeks; lips and ears thin; form of chest narrow laterally and bulging in front; some flattening under clavicle; blueness of sclerotic, indicating anemia; expansion of chest, left side one half inch; right side one inch. Auscultation: Left side, increased vocal resonance; respiratory sounds exaggerated; in upper portion of lung very fine râles in places; right side, normal respiratory murmur somewhat intensified and harsh over middle and upper portion; percussion sounds quite tympanitic over both lungs, almost like emphysema. Diagnosis: Chronic tubercular pneumonia, or tubercular phthisis in its first stage. Both lungs affected; left somewhat more than right."

On November 30, 1892, at 3 P. M., I gave him the first injection of tuberculocidin of 10 minims containing 2½ milligrams. There was no constitutional effect produced. The following day I gave him 4 milligrams; the third day 5 milligrams, and continued this strength until the eighth injection, when I gave him 10 milligrams, which produced headache and a feeling of fulness about the head; vision became dim, with flashes of light before the eyes, and a feeling of "squeezing" at the apex of both lungs. There was a slight rise in temperature amounting to about half a degree two hours after each injection.

After the tenth injection the cough gradually subsided, becoming more loose, and the night-sweats ceased. His appetite became good, eating freely of the regular hospital diet. At the fifteenth injection the dose was again doubled, giving 20 milligrams at each injection. The first two or three of these injections caused an exaggeration of the symptoms named before. On December 16th, or 17 days after the first injection, the temperature first reached normal and continued there with but very slight variations in the evening until his discharge. His weight on December 28th was 121 pounds. The dose was gradually increased each five or six days until 60 times the original dose was given, or about four and one half grains of the pure tuberculocidin. He continued to improve until January 16th, 1893, when he was discharged, weighing 126 pounds; was free from cough and said he was perfectly well. I again had Dr. Hill examine this man and he wrote me as follows: "I have this day examined William W., who has been under your treatment at the Williamsport Hospital, and beg to submit the following opinion: The general appearance of the patient is much improved over that of seven weeks ago, at which time I first saw him, and just previous to the beginning of your treatment by tuberculocidin injections. The contour of the chest has notably improved, the depressions at the apex of the lungs being less marked, and an appreciable increase in lung expansion. The percussion note is normal at all points, except a small area about one inch below the right clavicle, where the resonance is somewhat exaggerated, probably indicating a cavity undergoing closure by cicatricial contraction or circumscribed bronchial dilatation.

"Upon auscultation the previously existing roughness and elevation of pitch of expiratory sounds are absent, the normal bellows-murmur being fairly well produced everywhere. Comparing the conditions present at the time of my first examination with those now existing, I believe you have succeeded in suppressing what seemed to be fairly positive indications of tubercular phthisis in its incipient stage."

This man had, in all, 48 injections. To-day he is working at his trade and is in fairly good health.

Case II.—Harry R. was admitted to the

Williamsport Hospital, Feb. 15, 1893. Age, 22 years; occupation, a clerk. Following history:

His father died of tuberculosis when he was 7 years of age, and his mother died of the same trouble when he was 14 years of age; he is an only child; has been unable to work since October last. Upon examination, marked dulness is found over the apices of both lungs; more distinct over left. Temperature is in the evening, 101° F.; in the morning, 99.2° F.; pulse, 100; respiration, 28; has had several hemorrhages, one or two quite severe.

He was given hypodermatic injections of tuberculocidin, the first being of the strength of 5 milligrams. The same general line of injections were given as in the preceding case. The constitutional effect was produced by the first injection, the patient complaining of dull headache and dizziness, with a feeling, when walking, of falling. There was a rise of temperature after each injection of about one half a degree. The appetite gradually improved, and after the 15th day the temperature became normal and remained so throughout, except following the injection. He was discharged April 3, 1893, weighing 137 pounds, free from cough and feeling well, and has remained well ever since.

Case III.—William L., age, 20. He was sent to me by Dr. Nutt.

Saw him first on April 19, 1893; had been sick since October, 1892. He was very weak; his pulse, 140; respirations, 38; had cough with a large amount of expectoration, expectorating fully one half pint each twenty-four hours; had several hemorrhages, one on the day I saw him; his stomach was rejecting two-thirds of the food taken; there was great emaciation; temperature in the evening, 104° F.; 102.5° F. in the morning. He was unable to sit up long enough to be examined. Râles were heard over both lungs, covering nearly the whole chest. His weight was 107 pounds. His general condition was that giving every indication of rapid dissolution.

I attended him until April 28th, during which time he was growing rapidly worse. I then determined on trying hypodermatic injections of tuberculocidin, rather as a placebo than with any expectation of improving his condition. I gave him first an injection of five milligrams, and gradually increased the dose until 20 milligrams were given at each injection. After the seventh injection the stomach retained food, the fever gradually subsided, until on the eighteenth day temperature reached normal, and with one exception has remained so ever since. On May 4th, his weight was 116 pounds; on May 9th, it was 117½; on May 18th, it was 121 pounds, and on June 14th, it was 126 pounds, or a gain of 19 pounds in forty-eight days. During the early part of the treatment he had several slight hemorrhages. The night-sweats subsided after the 15th day, and there has been no return. He now rides out and walks about the town; his appetite is good, he sleeps well, but still has some cough.

Case IV.—Andrew S., age, 54.

First saw him May 29th, 1893; occupation, a millwright; his father died of consumption; also one brother and one sister. Has been sick for seven weeks,—attended by a physician for rheumatism; had a severe attack of "grip" two years ago; has not enjoyed as good health since; had a harrassing cough, spitting freely of pus; profuse night-sweats; dulness over right lung, probably due to a consolidation following pneumonia. Diagnosis: Tubercular degeneration following consolidation. His temperature was 100.5° F.; pulse 100; weight 112 pounds; great emaciation, and unable to work.

Gave him the first injection of tuberculocidin of same strength as above on May 30, 1893, which was gradually increased, producing the same constitutional effects described in the other cases, until the dose of 20 milligrams was reached. On June 16th, his pulse was 96, temperature normal, and his weight 120½ pounds. June 23d, his pulse was 92, temperature normal, and his weight 126½ pounds. To-day (June 30th, 1893), temperature is normal, pulse 90, and his weight 132½ pounds. In this case there was a gain of 20½ pounds in thirty days. The temperature reached normal on the 10th day and has remained there ever since. The cough ceased after the 15th day and there has been no return. While the dulness over the right lung still continues, this man now feels perfectly well, and will go to work at his trade within the next ten days.

Tuberculocidin is described by Dr. Klebs, of Zurich, the originator of this method of treatment, as follows: "There are various methods of obtaining tuberculocidin. They all have that in common that the substances which are precipitated from the crude lymph (tuberculin) by platinic chloride, and the so-called alkaloid reagents, contain all the noxious bodies of the crude lymph. Whereas the albuminose, which remains in solution and which can be precipitated by alcohol, can be obtained in a pure state, and contains the pure curative principle of tuberculin. This albuminose is now prepared on a large scale at Höchst-on-the-Main. The efficiency of their preparation can, in this way, be tested by myself on tubercular animals. The dangers arising from variation in the composition of the drug and those arising from the effects on the action of the heart, which were so frequently observed during the use of the crude lymph, are safely avoided by these means, and the doses used on animals being furthermore far larger than those ever given to a patient."

He further says, the question of whether an absolute cure is at all possible in these cases must be left open. To succeed it would be necessary to keep down the temperature permanently and build up the whole debilitated system, and remove every possible kind of disease accessible to us.

I still have under treatment two cases in which this remedy has been used for too short a time to report the results. Reports will follow in a later paper. My experience has been unlike that of Dr. Klebs with this remedy. He states in his paper that there is frequently a loss of flesh during the time of the treatment, with a rapid gain following its discontinuance. In each of these cases there has been a rapid and almost marvellous increase in that way, excepting in case number two. Every constitutional symptom in each of these cases disappeared after about two weeks of the treatment.

While four cases are not sufficient to prove beyond question the efficacy of this remedy, yet I feel so encouraged by its use in this small number as to urge its further trial in the relief of a class of persons who have been the bugbear of the physician. No other remedy has proved as efficient in my hands. In these four cases I have given about 175 injections without producing a single abscess. The syringe used was an ordinary one as purchased in the shops, being careful that the syringe should be thoroughly cleansed before and after each injection with absolute alcohol. The pain at the point of injection has been slight. The injections have been made just below the point of the scapula, alternating from side to side each day, the skin being thoroughly cleansed with alcohol before each injection.

For the purpose of diluting the tuberculocidin I have used a one-half of one per cent. solution of carbolic acid in distilled water, never having prepared more than eight or ten injections at any one time. The results of the treatment by this remedy in my hands have thus far proved more than satisfactory.

Williamsport, Pa.

LYSOL,
AN EFFICIENT ANTISEPTIC.
WITH CLINICAL RECORD.

By E. P. MURDOCH, M. D.,
Chief Surgeon Railway Hospital Service.

The question of the selection of a proper antiseptic in surgical and obstetrical practice involves a number of points that are of the utmost importance to every operator, and these questions can only be settled by clinical observations. While laboratory experiments may be of great value as guides in the use of antiseptic dressings, they fall far short of meeting the requirements of the surgeon in determining what he shall use; and, in fact, few operators have been guided by these experiments in their actual practice. The fact that bacilli were cultivated in a medium impregnated with iodoform has had but little if any effect upon the use of that remedy in surgical practice; nor will the destructive effects of other drugs upon germs be a sufficient guide for their use in the operating room.

The essential points in concluding what to use, must be determined by clinical observations; and these are some of the points to be considered:

1st, safety; 2nd, efficiency; 3d, adaptability and ease of handling; 4th, freedom from unpleasant results. And when these points are all considered, few antiseptics have met all the requirements.

Carbolic acid is not only inefficient as a germicide, but it is not free from unpleasant and even toxic effects, both in surgical dressings and in the irrigator, besides being quite objectionable to the operator by dulling the tactile sensibilities of his examining finger.

Iodoform is extremely unpleasant on account of its odor, often produces severe dermatitis, and in powder form cannot be made available in many cases; while bichloride not infrequently must be avoided because of its toxic effects.

Having met with these objections to the remedies in use by all surgeons, I was led to try lysol, and with the most satisfactory results thus far in every case. I have found it safe, pleasant, and well adapted to all cases; and as to its efficiency, I can best answer by some notes from a few cases.

In acute surgery I have used it in a number of cases of railroad injuries with perfect satisfaction; this, too, where the severe contusion, so common in these injuries, produced extensive sloughing. Thus, a lysol dressing put upon a crushing injury to the forearm was left nine days before removing it, when it was found that the necrosis in the soft parts presented no offensive odor, but, on the contrary, was dry, black, and mumified, and in a perfectly aseptic condition.

The notes from two cases may serve to illustrate the wide range of usefulness of this antiseptic.

Case I.—I. J. W., a switchman, had his left hand caught in the draw-bars and completely crushed, requiring amputation of a part of the hand. Being desirous to save all of the hand that could possibly be saved, I was guided by the bone injury rather than the contusion to the soft part. The shattered fragments of the little and ring fingers were removed, together with about one-half of their corresponding metecarpal bones, and the soft parts made to cover the wound as far as possible in their bruised condition, the whole being washed with ten per cent. solution of lysol and dressed with gauze saturated in a twenty per cent. solution of the same. This dressing was allowed to remain nine days, and when removed the parts were found to be perfectly aseptic, notwithstanding the extensive necrosis of the contused soft parts, which was dry and hard even up to the time of separation from the living tissue. The dressing was renewed, and the hand dressed each alternate day until the patient was discharged with good use of the remainder of his hand, thus enabling him to resume his occupation.

I have had equally good results in burns where there was deep destruction of tissue.

Case II.—Was called by a brother physician to see Mrs. B., who gave a history of miscarriage at three months, some five days previous. Upon examination found temperature 104° F., pulse 120, and considerable delirium, while the discharge from the vagina was extremely offensive. With a dull currette we removed a considerable quantity of placental tissue, irrigated the uterus with a ten per cent. solution of lysol, and then with an applicator wrapped with absorbent cotton we swabbed the interior of the uterus with lysol, full strength; the temperature dropped to normal in two days, and the patient made an uninterrupted recovery.

Thus far I am free to say that lysol has been equal in efficiency to bichloride of mercury; free from toxic effects; pleasant to both patient and operator; and, because of its anesthetic properties, it is the most satisfactory dressing in burns that I have as yet had the opportunity to use.

70 State St., Chicago, Ill.

PERISCOPE OF THERAPEUTICS.

By J. LINDSAY PORTEOUS, M.D., F.R.C.S., ED.

DUBOISINE—TOXIC SYMPTOMS.

How often we find that after a new remedy has been introduced and lauded in the most extravagant manner, some one finds that there is danger in its use. C. Crouzet (*Rec. d'ophtal.*, 1893), has found such to be the case with duboisine. When employing it in the treatment of iritis plastica with adhesion of the whole pupillary margin of the lens, in which he used five drops daily of the following solution: Duboisine sulphate, 5 cc.; water dest., 10 grams. Four days of treatment produced drying of the throat; but still he pursued, as the synechia began to yield. A few days later, the pulse became more frequent, there was great weakness, rise of temperature, and disturbance of speech as in aphasia. Crouzet is the first to have noted these untoward symptoms.*

TROPA-COCAINE.

Seifert has used a solution of tropa-cocaine as an anesthetic in laryngeal and nasal surgery. He found that it required a stronger solution of this than of cocaine. He also found that intense hemorrhage is apt to follow its administration, and he advises that preparations for the arrest of the same be made before using the drug.

BICARBONATE OF SODA AND DIGESTION.

Linoseur and Lemoine, from careful experiments, find that bicarbonate of soda in all doses excites secretion of the gastric juice. They find that five grams given an hour before food produces the best effects. It is *the* medicine to be used in cases of insufficient gastric secretion, and ought to be given some time before taking food. Its action is prolonged after the day of administration. It only acts as a palliative in excessive acidity, and may prove injurious in such cases.

EUROPHEN.

Kopp (*Therap. Monats.*, March, 1893), records his experience with europhen in venereal disease. For the sake of economy he mixed it with boric acid, but using europhen alone caused no bad symptoms. In nineteen typical cases he scraped the chancre after applying ether as a local anesthetic, hemorrhage being arrested by pressure and swabing with corrosive sublimate compresses. The mixed powder was then applied to the dried surface and allowed to cake, the scab not being removed, but fresh powder added twice daily. Healing under the powder took place in all cases in from two to ten days. In one case an inguinal abscess formed, which required opening, but it healed in less than three weeks. In the remaining fourteen cases the chancre was simply cleaned with a 1 to 1000 solution of the per-chloride and then covered with the powder, the washing and dusting taking place two or three times daily, and healing averaging seventeen days. Two sloughing buboes were treated on the same lines, the bases being scraped away with a sharp spoon and the overhanging skin removed. The author's experience is that europhen is a valuable substitute for iodoform in venereal and other affections.

---

* As near as the writer can recollect, it was in 1880 that the late Professor Lundy, of Detroit, Michigan, read a paper before the State Medical Society, giving an interesting account of his experience with this remedy in the treatment of eye diseases, and he entered into considerable detail for the purpose of showing that duboisine solutions instilled into the eye were liable to produce decided toxic effects. A number of cases were reported; and but little was known of the clinical value of the drug at that time.—ED.

Phenate of Cocaine as an Anesthetic.

Kyle kept records of 150 cases where he had applied phenate of cocaine in nasal and laryngeal operations. He used solutions varying from two to ten per cent.; the most useful strength was about four to six per cent. He found that while the length of time required to produce the anesthesia was somewhat longer than when hydrochlorate was used, the effects were more lasting. The average time required was about seven minutes. In none of the 150 cases where there any signs of cocaine poisoning and no bad after-effects. Phenate of cocaine is also a powerful antiseptic.

Creosote in the Treatment of Leukemia.

Vehsmeyer gives the history and condition of a child nine months old, suffering from typical leukemia accompanied by marked rachitis. He proposed anti-bacteriological treatment, and found that creosote mixed with water and spirit answered the purpose. In time, the temperature and action of the skin became normal, while the spleen diminished steadily and more color became noticeable in the mucous membranes—only marked stridor persisting. Unfortunately, the rachitis continued, and four weeks later the treatment had to be suspended owing to dentition and bronchitis, which soon led to aggravated leukemic symptoms and marked deterioration of the general condition. The patient being in a dangerous condition, the author ordered sulphate of berberine, as recommended by Arzela for splenic tumors. Owing to the possibility of hemorrhage, the tincture of berberis vulgaris was first used, followed in two weeks by the spirituous solution of the salt, when marked improvement took place. At the same time, the food was almost non-albuminous, and the glands, which had become troublesome, were treated with an ointment containing chloride of ammonium and camphor, which led to suppuration and healing. After two or three months the splenic enlargement became much diminished; the blood became almost normal, and the general condition was satisfactory. The child ultimately died from convulsions, probably caused by teething. The author does not claim that he cured the leukemia, but improvement was great, and he advises further experiment, when he thinks that in adults it may prove a perfect success, because the diet can be more particularly controlled.

83 Warburton Ave., Yonkers, N. Y.

HOW "INHIBITION" AND "INTERFERENCE" MAY BE DISPENSED WITH.

A New Theory.

By Thomas W. Poole, M. D.,
M. C. P. S. Ont.; Fellow of the American Electro-Therapeutic Association.

I have now the temerity to offer a new theory, on a physiological basis, by which the phenomena heretofore discussed* can be satisfactorily explained without recourse to either the hypothesis of inhibition or of interference. I propose, first, to endeavor to establish the basis on which this theory rests, and then apply it to the elucidation of the problems for the solution of which neither of the hypotheses named offer a rational and satisfactory explanation.

The two following propositions constitute the basis of this theory:

1st. Muscular tissue, through processes akin to that of oxidation, generates within itself its own contractile energy, independently of the nervous system, except in so far as the latter is necessary for the purposes of general nutrition.

2d. The function of the motor nerves in their relation to muscles, is not to supplement the contractile energy inherent in muscular tissue, but to restrain and co-ordinate muscular force, so as to render it subservient to the behests of the will, and the general purpose of the organism.

---

* The Hypothesis of Nervous Interference. American Therapist, August 1893.

If these two propositions are admitted, the facts and phenomena of disease and drug-action will be found to fall into line, and to admit an easy and rational interpretation, without invoking the hypotheses of either inhibition or interference.

The first of these propositions will hardly be disputed at the present stage of physiological knowledge. I may quote, however, the following in justification of the same. Those eminent physiologists, Todd and Bowman, long ago "protested" against the doctrine which taught that the spinal cord is the source of muscular irritability, and they add,—"It is contrary to all analogy to assign to one tissue the power of conferring vital properties on another. If bone, tendon, and cartilage have their distinctive properties, they possess them in virtue of some peculiarity inherent in their mode of nutrition and do not derive them from any other texture. And surely it is too much to suppose that a tissue like muscle, so complex in its chemical composition, and so exquisitely organized for the development of its proper force, should be dependent on the nervous system, or a portion of it, for its contractile power." (Phys. Anat. p. 302.)

Rosenthal, in his "Muscles and Nerves," says: "It can be proved that chemical processes proceed within the muscle, during muscular contraction, . . . the mechanical work must therefore be accomplished at the expense of these chemical processes, and it could be proved that the amount of work accomplished corresponds exactly with these chemical changes" (p. 73). Again, "A portion of the substance of which the muscle is composed, is oxidized, during its active state, and the energy released by this chemical process is the source of the work accomplished by the muscles" (p. 42). I quote further: "To use a common but appropriate simile, the nerve is but the spark which causes the explosion in the powder mine .... the forces which are set free in the muscle are chemical, due to the oxidation of its substances; the irritant originating from the nerve is only the increment in consequence of which the chemical forces inherent in the muscle come into play. Physicists call such process 'a freeing of the forces'. The nerve irritant therefore frees the muscle forces, and these translate themselves into warmth and work" (*Ibid*, p. 250). Why the *rôle* of the spark, or of the nerve, in these cases is called an "irritant" does not appear. It is probably a remnant of the now exploded idea that the nerve contributed force, in aid of the muscle. The name of the function assigned to the nerve is not of much importance, so long as it is clearly understood that the *rôle* of the nerve is to "free the forces," inherent in the muscle.

This first proposition might have been couched in the very terms used by Dr. L. Brunton, when he says: "The mechanical energy developed by the muscle, during its contraction, is derived from chemical energy liberated by changes in the constituents of the muscle itself." He then proceeds to show in what way the oxygen is present in the muscle, constituting "a force-yielding substance, or muscle-dynamite.....Irritation of a nerve appears both to liberate muscle-dynamite and to explode it, if we may so term it" (Pharmacology etc., p. 110).

In view of these authoritative utterances, I think the first proposition must be regarded as fully established, and that something has appeared also in favor of the second.

As for the second proposition, that the true *rôle* of the motor nerve is to restrain and co-ordinate muscular energy, the direct proof is easy, and I think complete, in so far as the involuntary muscles are concerned, including the muscular bands of the middle coat of the lesser arteries. I have presented this proof so fully elsewhere, especially in a lengthy paper read before the physiological section of the Ninth International Congress, held at Washington, in 1887, which soon after appeared in the *Medical Register* of Philadelphia, and other journals, that I will refer the reader to these, since space would fail here to do the subject justice.

As for the *voluntary* muscles, the case is different, and here the direct proof that the function of the nerve is to restrain the muscle is difficult, and, I must admit, inconclusive, at present, though supported, as we shall see, by a fair body of evidence. Yet the claim thus put forward is not new. Dr. C. B. Radcliffe, F.R.S., in his book on "Epilepsy, Paralysis and Pain," lays down several propositions asserting this doctrine very strongly and supporting it with some very cogent evidence.

The late Dr. Francis Anstie, too, in his fine work entitled "Stimulants and Narcotics," has pointed out numerous illustrations of the constant association of spasms and convulsions with more or less complete paralysis of the nervous centres. Among other things bearing on this subject, he says, "The most striking of all vital motions—those of the muscular system—may at least be strongly suspected to depend upon the physical properties of the tissue in which they are developed; and the true action of vital force would appear to be rather that of restraining muscular contraction than of exciting it" (p. 70).

Dr. Lauder Brunton, in his Pharmacology, etc., writes: "Nerve tonics are used when the nervous functions are imperfectly performed, as shown by dulness, loss of memory, incapacity for work, languor, paralysis, or a *tendency to spasm*, as in chorea" (p. 351) (Italics mine). Now, as is well known, on the theory of our textbooks, a spasm is due to over-activity of the nervous centres, stimulating the muscle, as is sometimes said, by "shocks" and "discharges" of nerve force. This theory must be erroneous, or otherwise nerve tonics in spasmodic states would be entirely out of place. Of spasm, Dr. Brunton says, again, "As a rule it is due to diminished activity of the co-ordinating or inhibitory centres, rather than to excess of action in the motor centres; it is, therefore, a disease rather of debility and deficient co-ordination than of excessive strength" (p. 193). Again, "As spasm is usually an indication of deficient nervous power, tonics....are useful as adjuvants" (p. 194). The force of these quotations in aid of the theory I am advocating, is all the greater since the imaginary inhibitory centres referred to above, have been, or are about to be, abolished, and as a consequence, the spinal motor centres are really the special points for consideration, and these, as Dr. B. says, are enfeebled in spasmodic states. The inference from all this, is in full accord with my second proposition, since in order to cure spasm we must reinforce nervous restraint.

It would be easy to add many similar testimonies from unexpected quarters, to the same effect, all of them in direct antagonism to the teachings of our textbooks and professional chairs. One would almost imagine that Dr. B. W. Richardson, F.R.S., had the terms of this second proposition in view, when he wrote the following: "The convulsive movements (of the drowning) are unconscious movements; they are the same as those which mark the period of stupor in death by hanging, by narcotic vapors, by concussion; and they are simply the results of action of muscles from which the controlling power of the nervous system has been withdrawn" *(Braithwaite's Retrospect,* July, 1871, p. 255). Dr. R. is not here alluding to the doctrine of brain inhibition, and the release of spinal cord activity by removal of that inhibition; and consequently his phraseology is all the more remarkable. It would, indeed, seem that this view of the relation of nerves and muscles, is so reasonable and so natural, that it finds expression almost involuntarily, though such expression is in direct antagonism to the theory of the past and present time.

A good deal of misapprehension on the subject of spasm, has arisen from the employment of the vague term, "irritation," as though it necessarily implied increased nerve action. This is doubtless a remnant of the now abandoned idea, that whenever a muscle showed contractile power, "a preternatural stimulus from the nerve," (Periėra) must also be present. Irritation is not increased nerve action. A splinter under the nail causes congestion and pain, but it is attended by a loss of tactile sensibility, and hence a lowering of function of the finger-tip (Anstie). As Dr. Anstie wrote, "Convulsive action of the muscles, as every one knows, is a very common complication of neuralgia," and the same acute observer held, that "pain is not a true hyperesthesia," on the contrary, "pain involves a lowering of nerve function" (*Neuralgia*, p. 12).

Accordingly, when we find the irritation of peritonitis inducing contraction of the abdominal muscles, and the pain of pleurisy fixing the chest walls by a tightening of the muscles, or when we see the contraction of the muscles of an inflamed joint, so well described by Dr. Hilton, in "*Rest and Pain*," we have no right to assume that these conditions are due to over-acting and unduly excited nerves. On the contrary, we ought to regard these as due to mild forms of nerve paresis, just as the irregular muscular action which shows itself in tremor, chorea, or spasm, denotes the failure of the ordinary nervous restraint over the corresponding muscles.

This second proposition, promulgated by me several years ago, in a publication entitled "Physiological Therapeutics," in the paper referred to above as read at the Washington Congress, and elsewhere, has met with acceptance in some influential quarters. In a paper, by Dr. John Aulde[†], in the "*Medical and Surgical Reporter*," June 30, 1888, I find the following indorsement of this theory: "How often do we witness subsultus in low fevers, twitching of the muscles, rambling and delirium, all due to depression of the nervous system, relieved by suitable pabulum in the shape of stimulants, or held in abeyance by calmative hypnotics or anodynes. These observations clearly point to the correctness of the theory that the function of nerve-force is to restrain and control muscular activity." I find this doctrine further endorsed in a leading article by the editor of the *Medical Register*, September 15th, 1888, in the following words: "It is now a well recognized truth, that venosity of the blood will cause dyspnea and convulsions; that these effects are due to the action of the impure blood on the nerve, destroying its function, and lessening its control over the muscle which it supplies. The muscular structure being freed from control, exercises its inherent property and contracts. This rule applies no less to the muscular structure of the arteries than to other muscles."

Both of these quotations contain almost the very phrases in which I myself had previously expressed the same idea, and it has been gratifying to me to find the theory I had been for years advocating, adopted unhesitatingly by authorities so distinguished.

I am aware, as already stated, that notwithstanding these and other endorsations of my theory, and the support given to it by the facts and observations quoted in these pages, it must be admitted that more direct proof is perhaps still desirable. But the same may be said of other theories, or hypotheses, those of inhibition and interference, for example, having merely an imaginary and unreal basis, while even the undulatory theory of light, though generally accepted, is attended by difficulties of the most serious character. Believing that enough has been offered to afford at least strong presumptive evidence in favor of this theory, I ask the reader to accept it provisionally, in view of the important results to which it leads, in elucidating certain problems in pathology and therapeutics for which no previous theory has given a satisfactory explanation. The practical application of this theory to the problems in question will form the subject matter of the next succeeding paper. *(To be concluded.)*

Lindsay, Ontario, Canada.

[†] Small Doses:—Therapeutic Considerations.

Recent Medicaments.

NUCLEINS.

Nucleins, according to Professor VAUGHAN, may be prepared from yeast-cells, or from various organs of the body. They are believed by him to be of importance not only in producing immunity, but in curing infectious diseases, and it is further claimed that they exercise a more powerful influence than can be secured by blood-serum in both the matter of prophylaxis and cure. The following points extracted from Dr. Vaughan's address before the first Pan-American Medical Congress regarding their preparation, chemical reactions, germicidal properties and physiological effects will prove of interest to our readers:

"*Yeast Nuclein.*—The cells from pure cultures of yeast are worked with sterilized water, then treated with five per cent. solution of potassium hydrate and filtered through paper—the falten-filter paper of Schlischer and Schull being used for this purpose. Sterilization of the filter-paper is not necessary. The filtrate is feebly acidified with hydrochloric acid, and the proteid precipitated with 96 per cent. alcohol. The precipitate is washed with alcohol by decantation until the supernatant fluid remains colorless. The precipitate is then collected upon a filter, and, after all the alcohol has passed through, it is dissolved in very dilute potassium hydrate (0.25 to 0.50 per cent.). That this solution contains other proteid bodies besides the nuclein, is shown by the fact that it promptly responds to the biuret, xanthoprotin and Millon reaction, but notwithstanding these impurities, solutions of nuclein prepared in this manner have marked germicidal effects.

"A purer form of yeast-nuclein may be obtained by digesting out the other proteids from the alcoholic precipitate with hydrochloric acid and pepsin, after the manner which will be described in the preparation of animal nucleins."

Several experiments made with solutions thus prepared show that they rapidly inhibit the multiplication of the staphylococcus pyogenes aureus. A solution containing 1110 colonies at the time of preparation, contained none at the end of an hour, and none at the expiration of twenty-three hours.

"A loop of tuberculous sputum showing from forty to sixty bacilli in each field, when stained, was stirred up in beef-tea, allowed to stand for twenty-four hours, and injected into the abdominal cavity of guinea-pig No. 1. Another loop of the same sputum was added to a solution of thirty milligrams of impure yeast nuclein in 0.08 per cent. of potassium hydrate, and this was also allowed to stand in the incubator at 38° C. for twenty-four hours, and then injected into the abdominal cavity of guinea-pig No. 2.

"At the expiration of fourteen days, both of these animals were killed. The omentum of No. 1 was a tuberculous mass throughout, while No. 2 showed not the slightest evidence of the disease.

"These solutions of impure nuclein in dilute alkali may be kept at ordinary temperatures in glass-stoppered bottles for months without undergoing putrefactive changes."

Testicular Nuclein.—This product has been prepared from the testicles of the bull, dog, guinea-pig and rat.

"The testicles are stripped of their investing membranes as soon as removed, rubbed up and extracted repeatedly with a mixture of equal volumes of absolute alcohol and ether. Then the testicular substance is digested for some days—until the supernatant fluid fails to respond to the biuret test for peptones—at 40° C., with pepsin and 0.2 per cent. hydrochloric acid. The undigested portion which contains the nuclein is collected on a filter-paper and worked first with 0.2 per cent. hydrochloric acid, then with alcohol. Finally, it is dissolved in a 0.5 per cent. solution of potassium hydrate and filtered through a Chamberland filter without pressure.

"This solution is clear, more or less yellow, and feebly alkaline. On the addition of nitric acid a white precipitate forms and dissolves colorless in the cold on the further addition of nitric acid. This nuclein does not give the biuret reaction, but does respond to the Millon test.

The nitric acid solution of the precipitate becomes yellow on the addition of ammonia."

Experimental evidence shows conclusively that this nuclein also possesses germicidal properties, tests being recorded covering exposures to the bacillus anthracis, staphylococcus pyogenes aureus, etc.

Professor Vaughan also confirms the reports of investigators in regard to the germicidal properties of glycerin extracts of certain organs.

Thyroid nuclein, egg nuclein, and others, are prepared in the same general manner as that given for the preparation of testicular nuclein, and a number of records are given showing unmistakably that these solutions contain germicidal properties of inestimable value, although it must necessarily require time for their more complete study and physiological adaptation to the treatment of diseased conditions.

DEXTRO-COCAINE.

A new form of cocaine, called "dextro-cocaine," and its salt, the hydrochloride, is made the subject of a brief explanation by the investigator, regarding the method of their production. The optical activity of ecgonine and cocaine is a physical property common to organic bodies containing an asymmetrical carbon atom, being due to the effect of internal molecular motion on the rays of polarized light. Such optically active bodies, like tartaric acid, exist under two modifications, rotating to the right and to the left respectively. When the ordinary lævorotary ecgonine or its derivates are subjected to the action of strong caustic alkalies for several hours, a dextro-modification takes place, and dextro-ecgonine can be isolated from the product. This has the same chemical constitution as ordinary ecgonine, but behaves differently with the polarized ray; and it yields under benzoylation and methylation, a cocaine that is likewise dextrorotary. This dextro-cocaine has an analogous physiological action to that of the ordinary (lævorotary) cocaine, but is somewhat more rapid in its action and has been found to cause a greater degreee of local irritation than the older drug.

Still another new preparation, called "tropa-cocaine,"[see AMERICAN THERAPIST, June 1893, p. 318], derived from the narrow-leaved Java coca, is made by BOEHRINGER, also its hydrochloride. The formula of this base reads $C_{16}H_{19}NO_2$. Although this drug has anesthetic properties in common with cocaine, it is not mydriatic, and is reported by Liebreich and Chadbourne as being considerably less toxic. The solutions of the hydrochloride of tropacocaine have the advantage of high relative stability, and have been commended for dental purposes by Hugenschmidt, and for local anesthesia, where marked and prompt action is desired, by Liebreich.

The conscientiously thorough work that has been done by the best cocaine manufacturers has greatly improved the therapeutic relations of the drug. "The difficulty of purification," says Helbing, "presented by the presence of various uncrystallizable substances," or amorphous bases that were too common in the cocaine of commerce a few years back, "could not have been overcome by any purely technical processes of the rule-of-thumb order. It was only by patient investigation pursued in the unwearying spirit of the scientific method, that the maker of cocaine has been able to obtain the high standard of purity that can be affirmed of the preparations we have been considering."

Editorial N. Y. Med. Jour., July 8, 1893.

SOUND OF A SUNBEAM.—That rays of light produce sounds has been repeatedly demonstrated. A beam of sunlight is caused to pass through a prism so as to produce what is called the solar spectrum or rainbow. A disk having slits cut in it is revolved swiftly and the colored light of the rainbow is made to break through it. Place the ear to a vessel containing silk, wool or other colored material, and as the colored lights of the spectrum fall upon it, sounds will be given by different parts of the spectrum while there will be silence in other parts. Every kind of material gives more or less sound in different colors, although no sound occurs in others.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
4621 FRANKFORD AVE., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. SEPTEMBER 15th, 1893. No. 3.

Editorial.

A CONTRIBUTION TO CELLULAR-THERAPY.

Inasmuch as it furnishes a scientific basis for the various methods about which there has been considerable controversy during the past few years, the experiments of Professor VAUGHAN, published in another department of this number, must be considered a notable contribution to cellular-therapy. The questions relating to phagocytosis and the germicidal properties of blood-serum have been taken in hand in a practical manner, with a view to determine the peculiar functions which afford immunity from disease, and the results of this investigation are conclusive in showing that resistance to disease depends upon the integrity and functions of the living cell. For example, Prof. VAUGHAN has demonstrated that the virtue of phagocytes lies in the nuclear body—after the removal of all extraneous matter—and it is not assuming too much to say that the nucleus secretes a substance which is itself an active germicide; and, although the evidence is still incomplete, the facts point to the explanation of the antiseptic properties of blood-serum in proportion to the activity of the nucleus of the cell.

There are so many interesting questions connected with this new departure that it will be impossible at present to more than hint at the therapeutic probabilities promised by the scientific facts thus far advanced, and we, therefore, commend the subject to the attention of those who are directly interested in advancing the cause of scientific medicine.

THE PHYSIOLOGY OF SPASM.

To those who have studiously considered the arguments advanced by Dr. Poole upon the hypotheses of inhibition and interference, the following extract from a clinical lecture by Prof William Pepper, of Philadelphia (*Medical & Surgical Reporter*, May 5, 1888), will prove exceptionally interesting reading. The writer, while admitting the incompleteness of these hypotheses, is, nevertheless, disposed to accept the demonstrations so far as they are compatible with our present knowledge of physiology, pathology and the occult forces liberated by chemical action, and he has, therefore, taken the liberty of inserting here, certain interpolations in brackets which will shed some additional light upon this complicated question. These interpolations are intended to explain, rather than explode, the generally accepted theory of inhibition, although, no doubt, a more satisfactory explanation will be forthcoming when we have interrogated the economy with a view to determine the funtion of the living cell. The case under consideration was that of "Lithemia with Grave Nervous Symptoms", in which the patient suffered from right-sided convulsive seizures, conciousness being unimpaired.

Says Professor Pepper, "Their occurence is [*may be*] ascribed to the irradiation of powerful motor impulses [*occult influences*] proceeding from nervous centres, which are kept in an almost constant state of irritation and excitement by the morbid condition of the blood which nourishes [*fails to nourish*] them. From time to time there occur periods when defective co-ordination between the great abdominal viscera, the kidneys, liver and stomach, is followed by serious vitiation of the blood. The processes of secretion and excretion are interfered with or temporarily suspended, and the blood becomes loaded with effete products, which, when in sufficient quantity, quickly manifest their power of exerting an actively poisonous influence [*destroying nerve-function.*] The nervous centres, bathed in this toxic fluid, become intensely irritated; they become even more morbidly sensitive than usual, until finally, when nervous tension has reached a point beyond which it cannot go [when nervous *control is suspended*] there is a sudden explosion of force manifesting itself in these violent muscular contractions. At such moments comparatively slight causes are sufficient to overthrow all inhibitory [*controlling*] influence and give free reign to these irregular exhibitions of [*muscular*] energy. In this particular case these phenomena are brought out with exceptional clearness."

From the foregoing it will be evident to the most obtuse that the medical profession has not realized the true conception of the physiology of spasm, and Dr. Poole has, therefore, practically entered an unexplored field. Perhaps some additional light might be thrown upon this obscure page by a brief reference to the methods of treating spasm. Before we had gained our recent bacteriological knowledge, bromides were regarded as all-sufficient, and they are even now used with considerable success, because they allay or obtund peripheral irritation. It is, perhaps, true that they inhibit or interfere with the transmission of painful impulses, but their curative properties lie in an entirely different direction, since by allaying pain, metabolism proceeds in a manner approaching the normal, and thus nutrition is repaired through restoration of cell-function. Both strychnine and gelsemium have attained celebrity in the empirical treatment of spasm, and when judiciously employed, are efficient; but their use is based upon strictly physiological grounds that must be apparent to all who have given the question a moderate degree of deliberate study and reflection.

These remedies, instead of neutralizing the poison by chemical action, counteract its physiological effects as we understand it, and thus place the system in a more favorable condition for the elimination of the cause. Strychnine, by its action upon the cerebro-spinal apparatus, takes up the slack, as it were, while gelsemium enacts a similar role, but on a lower plane; both regulate nervous tension, whereby the cell-function is restored. An admirable illustration of the two methods is shown in our treatment of a common cold, either by vascular stimulants, such as ammonium carbonate or Hoffman's anodyne, or by vascular sedatives like aconite, veratrum and gelsemium. In either case the same end is obtained, that is, relief is secured, although the patient is often left debilitated; but this may be practically eliminated by a proper adjustment of the dose. The evidence is plain that the physiology of spasm requires the selection of remedies, and the adoption of measures, which contribute to the removal of the cause and the re-establishment of the normal cell-function, without materially deranging the interdependence and relations of the various organs and tissues involved.

THE PAN-AMERICAN MEDICAL CONGRESS.

The first session of the Pan-American Medical Congress, which was held in Washington during the early part of this month, has now become a matter of history, but owing to the immense amount of work done in the matter of papers presented with the discussions following, it would not be safe to make a prediction as to the ultimate results. In point of numbers in attendance, in respect to the character of scientific work done, it will compare favorably with any convention of like character which has preceded it, while the social features were all that could be desired. From the reports published so far, it is apparent that much good will result from the unanimous action taken in regard to the need for the better protection of the public health, and it requires no prophetic vision to foresee that it is but a question of time when the different governments of the Western Hemisphere will extend a proper recognition to the medical profession, since recent narrow escapes from epidemic diseases have taught the political leaders that public health is public wealth. The present seems to be an auspicious moment for directing the attention of the profession to the advantages of a health officer in the President's cabinet.

OBITUARY.

Jean Martin Charcot, the distinguished author and teacher, of Paris, died at Morvan, August 15, 1893, at the age of sixty-three. Professor Charcot was recognized as the greatest neurologist of the period, and had a world-wide reputation. His writings have been numerous and valuable, and no text-book on nervous disease s complete without some references to the works of Charcot, who, undoubtedly, stood at the head of the French school in this department of investigation. He was un-iring in his investigations, his great de-ight being to accomplish something which should shed additional light upon the mys-eries and the mysterions ways of life with a view to eliminating and conquering disease in its multitudinous forms. He was a member of many scientific societies both at home and abroad, and his death will be sincerely felt by his fellow practitioners and by his many patients scattered throughout the world.

Julius Sommerbrodt, Professor at the University of Breslau, an eminent medical authority and specialist, died at his home, August 14, 1893. Professor Sommerbrodt was the originator of the *intense* creosote reatment for tuberculosis, and he published a highly instructive and valuable report on his method, embracing the clinical history of over five thousand patients which came under his observation during a period of twelve years. Deceased was distinguished in scientific circles, and prominent in the social life of the University town as well as other cities throughout Germany, and he had many followers in America. In recognition of his great achievements in medicine, he was decorated as Knight of several orders by imperial favor. His loss will be keenly felt by his associates, and it will be difficult to find one who will fill his place in the hearts of his many patients.

John M. Maisch, Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy, died September 11th, 1893. Professor Maisch was born in Germany, January 30th, 1831, and left home for America because of his connection with the Revolution of 1848. He took up pharmacy at once, and in 1854 became associate editor of the *American Journal of Pharmacy*, which he later on controlled entirely and has made a representative scientific publication. In 1861 he was employed in Dr. E. R. Squibb's laboratory, and at the same time served the N. Y. College of Pharmacy as Professor of Materia Medica. In 1863 he went to Philadelphia, and there he has remained, a hard-working pharmacist, botanist, professor, author, and a moving spirit in college work, the Association, and everything connected with American pharmacy. Besides the *American Journal of Pharmacy* and the Annual Proceedings of the American Pharmaceutical Association, which may be credited to him, he was the author of "Maisch's Organic Materia Medica," which is a standard text-book in every college in the country, co-editor of the "National Dispensatory," and associated in the production of other works. The A. P. A. and the Philadelphia College of Pharmacy suffer irreparable loss by the death of this faithful and enthusiastic friend and officer, and American pharmacy is poorer by one of its most distinguished and famous members.

Therapeutic Memoranda.

Small Doses.—One of the most serious obstacles to the onward march of medical science in the past has been the disposition of physicians to content themselves with a heterogeneous mass of clinical facts without regard to the scientific basis upon which they rested. The *furore* for formulæ and the rage for polypharmacy are now, happily, subsiding, but the number directly interested in the study of physiological therapeutics is, alas, too few, and the time is now at hand when more careful study must be given to this branch of science. To quote Macauley, "As the world gains in exact knowledge, it must lose in imagination; the moonlight of fancy giving way to the sunlight of fact, and the creative faculty yielding place to the spirit of investigation and criticism."

More than a decade has elapsed since Professor A. A. Smith, of New York, incurred the displeasure of his professional brethren by the publication of an article dealing with the therapeutics of small doses (*New York Medical Journal*, Feb'y 1883), simply because he admitted that he was unable to account for the effects upon other than an empirical basis. The teachings then recorded are, if possible, more useful now than when first brought to the attention of the profession, and, besides, we have made sufficient progress in the study of drug-action to enable us to determine with some degree of certainty the physiological rôle of a considerable number of the remedies in the above-mentioned article. Many of them the writer has employed with most brilliant results in the past ten years, and can testify to their efficiency. Some of them may be passed in review, as follows:

In diphtheria, potassium chlorate was recommended in doses of half a grain every half hour, a mode of treatment which is in perfect harmony with our knowledge of the therapeutic value of this drug. For example, when administered in solution, we first obtain the antiseptic effect upon the tissues affected; then upon the stomach contents; later, it is absorbed, passes through the liver into the general circulation, to be again eliminated by the kidneys and by the epithelial cells covering the mucous membrane lining the fauces, as *potassium chlorate*, where again, by reason of its antiseptic action, it arrays itself against the inroads of the disease. The true conception of the physiological properties of the drug can be appreciated only when we recall the fact that potassium chlorate is a protoplasmic poison, and acts as such at the points of elimination; but when administered in the small dose and at frequent intervals the effect is that of a mild stimulant, increasing the functional activity of the cells which stand guard over the absorption of the diphtheritic poison, or favors its elimination through the epithelium lining the convoluted tubules of the kidneys. The large dose, although apparently of greater immediate benefit, is less efficient in the long run, because it destroys the integrity of the very cells we wish to protect, in accordance with well-known physiological law, namely, that over-stimulation is followed by a corresponding period of depression.

Both sodium salicylate and balsam copaiba are recommended in the treatment of *urticaria*, the former in doses of two grains every half hour or every hour, and the latter in drop doses every hour. Now, the selection of these two medicaments will be governed by the conditions present, since it would be folly to prescribe either as a routine practice. When the urticaria is dependent upon a torpid condition of the liver—Fothergill's imperfect metabolism—the sodium salicylate will prove effective, since it is well known that this drug is an active stimulant (irritant) of the hepatic cells. The function of these cells being restored by constant exposure to the blood charged with the drug, elimination is diverted into the proper channel; hence, the urticaria ceases when the cause is removed, and the cell-structure of the integument promptly regains its normal condition Where urticaria is dependent upon derangement of the renal function, copaiba will answer, since that is a very efficient stimulant, increasing the flow of urinary water as well as the output of urinary solids. Besides this, however, copaiba forms in the system a conjugate glycuronic acid which renders it efficacious as an antiseptic. This is most marked in the case of cystitis with foul-smelling urine.

While it is true that both sodium salicylate and copaiba cause urticaria and other derangements of the skin, this alone should not be accepted as an indication for their employment, and it seems as if the line of investigation just pointed out would be sufficient to place their use on strictly scientific grounds. A single dose of a drachm of copaiba balsam will sometimes promptly arrest an obstinate cystitis that has resisted treatment for months, but the remedy is extremely objectionable to the stomach and few patients are willing to take it in this large dose. Drop doses in the form of an emulsion are readily tolerated.

For vomiting, Dr. Smith recommended half-drop doses of Fowler's solution every half hour until six to eight doses had been taken, a plan which is now quite popular throughout the country, and at first glance it would seem as though it would be difficult to demonstrate a physiological basis for a treatment so simple. Nevertheless, the solution of this is comparatively easy when we bear in mind that the cells of the stomach perform their special work independent of the nerve-supply. The act of vomiting is substantially an appeal for help or assistance to the other parts of the organism. When pain or irritation is sufficient to release muscular and nervous co-ordination, vomiting occurs, and this will be continued just so long as the cell-function of the stomach remains below par. As soon as the stimulant (irritant) action of arsenic is brought to bear upon the organ, this function begins to be regained, when the normal activity of the cells is restored. Large doses of arsenic will obtund the functions of the cells, and will temporarily arrest vomiting, but it will leave them in a deranged condition which requires time to restore, while, on the other hand, the small dose almost wholly avoids this untoward after-effect. Arsenic, even in these minute doses, effects marvellous changes in the functional activity of the nervous system, and, although there are many other points which might well be touched upon, for the present the subject must be dismissed.

Atropine is advocated in *false croup*, to be given in the following manner: One one-hundredth of a grain is dissolved in a glass of water and a teaspoonful given hourly. Estimating a glass of water to contain about six ounces, or forty teaspoonfuls, the dose would be one four-thousandth of a grain, and yet this is strictly physiological medication, and, moreover, it is successful, entirely free from the debilitating effects of the nauseating mixtures which have so long been in vogue. The therapeutic value of this practice is explicable by reason of the well-known disposition of belladonna or its active principle to affect the tissues of the throat. Whenever the drug begins to find an outlet through the cells covering the mucous structures, then these cells have their functions stimulated by the irritation of a foreign substance, and, so far as possible, they attempt to eliminate the poison, and with it go the morbid products which have contributed to produce the disease. And it will readily be seen that large doses, by destroying the functional activity of the cells, would defeat the very purpose for which the medicine was exhibited. What folly, then, to give a child a dose sufficient to set up a factitious disease along-side of the real disease, destroying the functions of the cells upon which we ought to depend for the restoration of the affected tissues. It also shows the fallacy of the old maxim that if a little is good, more will be better, at least, it proves that in some instances, it does not apply in the practice of medicine.

Perhaps for the present, sufficient space has been given to this subject, but the article under consideration contains a dozen other remedies which are almost in everyday use, and, should the foregoing remarks be considered of sufficient importance by the readers of THE AMERICAN THERAPIST, the entire list will be brought forward at an early date.

THE DECADENCE OF CLASSICAL MEDICINE.—From the multiplicity of discoveries within recent years leading to improvements in the treatment of disease, it must be apparent to the most cursory observer that classical methods, so-called, are in the incipient stage of decadence. And there is abundant reason why these antiquated methods should be set aside. One of the principal difficulties in the way—which prevents the setting in of the reform tide—is the apathy and non-progressive spirit which prevails among the physicians who have long been in active practice; their persistence in clinging to ancient doctrines and exploded theories is most discouraging to those who are anxious to advance the true interests of medical science.

That the criticism is just will be apparent when we recall the remarkable results achieved in the treatment of *typhoid fever* by the use of the cold bath alone. Alas! how many thousands of patients have been sent to an untimely death through this disease by the routine practice of administering drugs! In the case of *cholera*, last season, did not the simple irrigation of the lower bowel with soap-suds yield better results than any other method?

Instances are daily multiplying which go to show that the classical treatment of *summer complaint* in children is a delusion and a snare, since this formidable disorder can be treated successfully without medicine, simply by intestinal irrigation. From a report covering a number of such cases, by Dr. R. E. Müller (*Therapeutic Gazette*, Aug. 1893), we select the following as a representative of the entire class:

F. D., a female, hand-fed infant, seventeen months old, presented the characteristic symptoms of *choleroid diarrhea*, with rice-water stools, convulsions, and a temperature in a rectum of 104° F.

11.00 A.M. Rectal temperature, 104° F.; irrigation with ice-water.
11.40 A.M. Rectal temperature, 101.8° F.
12.30 P.M. Rectal temperature, 104° F.; irrigation with ice-water.
1.30 P.M. Rectal temperature, 101.2° F.
2.00 P.M. Rectal temperature, 103.6° F.
2.30 P.M. Rectal temperature, 101.2° F.
6.00 P.M. Rectal temperature, 103.4° F.; irrigation with ice-water.
6.30 P.M. Rectal temperature, 99.8° F.
11.00 P.M. Rectal temperature, 100.2° F.
9.00 A.M. Rectal temperature, 99.6° F.

In this case the irrigation was repeated every hour and a half or two hours, as the temperature rose almost immediately to its original level after each irrigation. The fourth irrigation was followed by a deeper and more lasting remission, with a cessation of the convulsions.

Now, while these reports seem to discredit the utility of antiseptic treatment as usually taught, they really do nothing of the kind, unless we admit at the same time that asepsis as practiced by surgeons casts a reflection upon the theory of Lister in respect to infection, because it was the investigation of Listerism, so-called, which made asepsis possible.

The futility of classical methods is well illustrated by the treatment of a case which recently came under the observation of the writer. The patient, a child less than two years of age, was taken by her parents to a popular summer resort where they intended to spend their vacation. This child was rather delicate, as she had, nearly up to that time, been raised by rule. About a month previously a more extended diet had been advised, and had proven beneficial, but, as very often happens in the hot season, a slight *ileo-colitis* developed within a few days after their arrival. In this dilemma a local physician of thirty years' experience was consulted, but notwithstanding his unremitting attentions the little patient's condition was at times alarming. At the end of several weeks, however, the parents becoming desperate, determined to take the chances of returning to their home, but after several days, no improvement being noticeable, the writer was summoned to advise treatment.

Treatment of the case is shown in the annexed formulæ, copies having been placed in the hands of the writer, although for a portion of the time, alcohol in considerable amounts had been regularly administered, frequently as often as every two hours. Some of the prescriptions had been repeated as often as five or six times and every opportunity had been afforded classical methods.

1) R. Hydrarg. chlor. mite........gr. i.
Sacch. lactis.................gr. x.
M. et ft. chart. No. x.
Sig.: One every 2 hours.

2)—*Fever Mixture.*
R. Tr. aconiti rad.............gtt. ij.
Aquae menth. pip.,
Aquae camphoræ,
Aquae calcis,
Aquae cinnamomi........āā f ℥ ss.
M. Sig.: Teaspoonful every hour or two.

3) R. Bismuth. subnit.............℈ ii.
Potass. bicarb...............℈ i.
Syr. rhei aromat.,
Aquae camphoræ........āā f ℥ ss.
Aquae cinnamomi..........f ℥ i.
M. Sig.: Teaspoonful after every passage.

4) R. Quininæ sulph............gr. xii.
Ol. theobroma...............q. s.
M. et ft. supposit. no. xxiv.
Sig.: One 3 times a day.

5) R. Acidi sulph. aromat....gtt. xlviii.
Tr. opii deodorat......gtt. iv.
Aquae camphoræ,
Aquae menth pip....āā f ℥ ss.
Syr. zingiberis.........f ℥ i.
M. Sig.: Teaspoonful in water every 2 hours.

6) R. Bismuth. subnit.............℈ ii.
Sodii bicarb.................℈ i.
Glycerini...................f ʒ i.
Aquae acidi carbol.........f ʒ ii.
Aquae camphorae..........f ℥ ss.
Aquae cinnamomi.... .....f ℥ i.
M. Sig.: Teaspoonful every 2 hours.

7) R. Ol. ricini....................ʒ ii.
Pulv. acaciæ,
Sacch. alb................āā ʒ i.
Tr. opii deodorat..........gtt. iv.
Aquae acidi carbolici,
Aquae camphoræ........āā f ʒ ii.
Aquae cinnamomi .q. s. ad. f ℥ ii.
M. Sig.: Teaspoonful every 2 hours.

8) R. Coxe's Hive Syrup (for croup).

[Contains: Squill, senega, tartar emetic, calcium phos., alcohol, syrup, and water.]

The feature of the above prescriptions which strikes the modern physician most forcibly is, the entire absence of antiseptics, unless we admit for the sake of argument that the aromatic waters are antiseptic in the doses administered. The writer is of opinion, however, that the treatment, as followed, not only did no good, but did actual harm; but this will not be considered at present. The truth of the matter is, that this child had been medicated almost to death. And still, with proper food, the patient would have recovered in spite of the medication. The child was reduced to a starvation diet in respect to amount permitted, and the selection of food was probably the very worst that could have been hit upon; and yet, it was strictly in accordance with classical methods—*barley water and barley broth.*

When first seen, the child was taking the quinine by suppository, the castor oil mixture and the Hive syrup; the bowels were loose; the movements being black and lumpy with an offensive, putrid odor; the abdomen was considerably distended and paroxysms of pain occurred; it was irritable, peevish, and always thirsty, but the tongue was not coated; emaciation was not marked, although the flesh was flabby and the little thing showed no disposition to walk, but required to be constantly nursed.

Treatment consisted in the discontinuance of all medicine and the food which had been ordered; as an hepatic stimulant and intestinal antiseptic a single dose of mercury biniodide (gr. $^{1}/_{100}$) was given that day; suitably prepared food was ordered every two hours, and boiled water to drink in moderation. At the next visit, two days later, the patient was lively and anxious for its food every two hours; the bowels had been moved several times, but they had nearly regained their normal color, consistency, and odor, and there was no abdominal pain or distension, and no thirst. In short, a perfect recovery had taken place through the regulation of the diet—and a single dose of medicine.

Current Literature.

HOW DO REMEDIES CURE DISEASE?

Having made a diagnosis of a disease, and prescribed the remedies by which I expected to effect a cure, I have often asked myself, "How do these remedies act? What is the '*modus operandi*' by which they eradicate the disease? It is true that Nature, in her own way, effects all the changes which go on in the system, while I am trying to assist her in this work. How am I doing this? Am I doing so at all? If so, in what manner do these little remedies I give produce changes that result in a cure?

If one patient recovers as a result of a certain course of treatment, why is it that another case, to all appearance exactly similar, and treated precisely the same, does not also recover? If I have, for instance, a case of typhoid fever, that I have treated carefully and judiciously, and still my patient dies; why is it that a homœopathic doctor has a case just like it that he treats with infinitesimal doses of his remedies, so attenuated as to leave no appreciable trace of the original articles, and a cure follows; what is it in each of these cases that causes such opposite results? Is it the effect of the remedies given, and if so what is the specific action of these remedies upon the tissues, and upon what tissues do they act? Why do two cases of the same disease, to all appearances just alike, and treated just the same, give different results? Why does one case recover, while the other dies?

How do we determine the exact condition of our patients; and how do we test the virtues and specific action of our remedies? Can we, certainly, determine the exact condition of our patients, and do we certainly know the virtues and specific action of our remedies? Do we know just what our patient requires, and are we sure we are giving just what is needed? In fact, is not our practice very largely empirical, based upon our own experience, and the professed experience of others? Why and how do our various remedies act, and where are these minute doses taken, and how do they act upon the tissues to produce all these wonderful changes ascribed to them? Many years since, I had a patient very low with endo-enterites. She had grown steadily worse for about two weeks, until her case seemed hopeless. I found her one evening apparently almost gone. I had treated her very carefully, and as I thought, judiciously; still, in spite of all, she had gone down steadily, day after day. She was terribly emaciated; had frequent and involuntary intestinal evacuations; speechless, comatose, nearly pulseless, and apparently moribund. I rode home, about four miles, disheartened, thinking I had made her my last visit. On my way I called to mind what Prof. N. S. Davis had told us of the very wonderful effects of nitrate of silver and opium in suspected cases of intestinal ulceration. I resolved to try it in this case. I went home and ordered my horses changed; made one grain of each into twenty pills, and returned to her home. I found her still sinking, and her friends weeping around her bedside. I assured them I had at last discovered the remedy in her case. I discontinued all other medication, and directed them to give one of these little pills every three hours. Twelve hours later I returned and found a decided improvement in every respect. In a few weeks she was as well as ever. Now what was it that effected that cure? What caused that marvelous change in less than twelve hours? Could it have been those minute doses of the nitrate of silver and opium; a twentieth of a grain of each, at a dose? If so, what was their specific action upon these diseased tissues to so suddenly transform them into healthy tissues? Was it these minute doses that caused this marvellous change, or was it some other influence? * * * *

Quinine arrests periodical diseases. How does it do this? One says, it chemically neutralizes the malarial poison in the system. Another, that it is an *antiperiodic* remedy, and has the power of arresting periodical diseases. Another, that it is a nerve tonic, and its effects are upon the nervous system, etc., etc. Now suppose it is all of these, and has all the qualities ascribed to it, and more also? Still the question will arise, how does it act upon the tissues, and why does it not produce the desired effects every time. Many years since, the writer was for many months a victim of intermittent fever. Nearly every day I had an ague chill. I took quinine by the scruple, still in a few days it would return with still greater force, and in a more violent form, in spite of all the quinine I could take. One morning I took the steamer at Chicago, before breakfast, for St. Joseph, Mich. The waves rolled high, and we crossed them diagonally. Sea sickness of the most violent character followed, with constant retching and vomiting from Chicago to St. Joe. I had no chill that day, and no return of the disease since that day, now more than forty years. Now why did not the quinine cure me; and why did the sea sickness effectually eradicate the disease from my system? * * * *

R. Sears, M.D.

(The Medical Examiner, June, 1893.)

Note:—The above extracts are taken from a somewhat lengthy but interesting and suggestive paper read before the annual meeting of the Iowa State Medical Society last May, and are reproduced for the purpose of showing how simple and easy the effects of medicine can be explained when one has a true conception of the abnormal conditions present in disease. For example, in the case of supposed ulceration of the bowels which so quickly responded to the use of the small doses of opium and silver nitrate, the explanation would run about as follows: Silver nitrate, generally classed as an alterative and astringent, when it enters the stomach, is probably changed by the hydrochloric acid present; in any event it is carried throughout the system, through the blood-vascular system and lymph-vascular system in the form of an inorganic salt, and is finally eliminated as such. Moreover, being a foreign substance and a poison, at least a limited portion is eliminated through the affected structures, the mucous membrane of the bowels, by the medium of the epithelial cells covering this mucous membrane. Perhaps on its route, it may produce some perceptible influence upon the nerve-supply of these cells, although, in health they perform their functions independent of the nerve-supply. Given in the small dose the irritant effects amount to a stimulation, that is, an increased impetus is given these small bodies to do extra work in order to eliminate a poison, a protoplasmic poison, if you please, and the nerve-supply being temporarily quieted or obtunded by the opium combined with the irritant, the protoplasmic cells are enabled to produce ozone and discharge sufficient oxygen which they have stored to enable them to regain their lost function. This "action" (katabolism), however, is not limited to the cells directly concerned, but as the medicament is distributed through the entire body, increased oxidation takes place at all points, and thus obstruction of function is immediately arrested. Recent investigations relating to the long continued elimination of arsenic by the kidneys when given in infinitesimal doses are sufficient to warrant us in assuming that even small doses of silver nitrate may produce therapeutic effects for a considerable time after exhibited. The probabilities are that much smaller doses of silver nitrate would have been more efficient had they been given at more frequent intervals, because we should then have all the advantages of stimulation without the corresponding disadvantages of subsequent depression from over-stimulation.

Referring to the relief from malaria which occured from a severe attack of sea-sickness—after the failure of quinine in scruple-doses—an incident will serve to explain the *modus operandi*. A certain man had long been troubled with what the doctors pronounced "malaria," but notwithstanding the earnest persuasion of several physicians and the diligent use of domestic and other remedies, the disease persisted. Finally, a friend persuaded him to adopt a novel plan, namely, that of coming down stairs on hands and knees, and although it appeared to him about as absurd as "tying strings around trees" and other superstitious notions, the novelty of the thing prompted him to try it one day. The result of the trial was that he had almost reached the bottom of the stairs before anything of an unusual character occured; when his hand touched the third step from the bottom, so the story goes, he was seized with severe retching and vomiting and became unconscious for a moment. The first thing which attracted his attention when he regained his senses was the vomited matter in the shape of a large, black semi-solid lump which seemed to him, for the moment, to be alife. After a time, however, all movement ceased in the lump, and further examination showed that it consisted largely of inspissated bile which had probably been released from the gall-bladder during the temporary strain which had taken place on his journey down stairs in the peculiar and novel manner described above.

These are probably the cases in which all medicines fail to give relief; and it is probably for this reason that the use of purgatives in the treatment of malaria has attained such great celebrity. Anything which produces a profound impression upon the liver and serves to relive undue tension resulting from the disease, will produce the desired results, although often at the expense of the patient's health. Even quinine itself produces this effect by causing more or less contraction of the hepatic gland, followed by most profuse alvine evacuations. While it is true that quinine renders the nutrient media inimical to the welfare of the *plasmodium malariæ*, our knowledge of the pharmacology of this drug warrants in assuming that it does something more than cure this disease. Its clinical position is well established, but it remains for the experimental physiologist to tell us what effect it has upon the cell-function both at the points of elimination and throughout the economy; they will also tell us what effect, if any, quinine has upon the nerve-cells, and then we shall be better prepared than hitherto to exhibit it with certain definite ideas as to its influence upon cell-nutrition, knowledge which should obtain in the administration of all medicinal substances.—ED.

PAIN ON RUPTURE OF THE GRAAFIAN VESICLE.

We do not find the inferior hypogastric nerve classified as belonging to the nerves of sensation. We find that almost if not all of the pelvic viscera are supplied by this plexus of nerves. I believe we might classify this plexus as having distinct sensory fibres. In going back now to the rupture of the vesicles and descent of the ovum, we find a rupture of three distinct coats as having taken place, viz., internal vascular and external fibrillated coat and the tunica propria. At the time of rupture —I may say the very instant that rupture takes place, there is a quick, sharp lancinating pain, lasting but an instant and in the region of the ovary. This may occur anywhere between two and five days before the menstrual flow manifests itself. I think by this that ovulation is usually at the left side, although sensation of the ovarian rupture is frequently experienced as being in the right side. Should this be physiological, the advantage of this sign, "lancinating pain," would certainly not be very great, but it would add something to our knowledge of physiology. Also in case we have a patient with a sanguineous discharge from the uterus, it would be circiumstantial evidence of menstruation instead of pregnancy with an impending abortion. It might also enable us to determine whether both ovaries were functionating or whether it depended wholly upon one. If each ovary performed its function alternately in a healthy woman the knowledge of this sign might enable us to explain in some cases irregular menstruation.

ELIZA E. GROSSMAN, M. D.

(Pittsburg Med. Rev., June, 1893.)

APOMORPHINE IN ALCOHOLISM.

I have frequently used the remedy, with the happiest results, in the various *hysterical phenomena*, especially when attended by convulsions or coma. When given during the aura of an epileptic attack it usually entirely inhibits the convulsions. Weill and others have completely and permanently cured cases of *epilepsy* with apomorphine hypodermatically. It is recommended in *tetanus*, *rabies*, and *puerperal eclampsia*. In *chorea* it has proven successful when other remedies failed completely.

Weill used it successfully in a case of *singultis* in a patient afflicted with tubercular meningitis. The hiccoughing occurred 40 times per minute and prevented all sleep, and did not yield to any of the usual procedures.

In my personal experience I have used apomorphine in a large number of cases of *alcoholic delirium* and *coma*.

A few cases from my list will best give my experience.

Case I.—Alcoholic coma. Name unknown, age 35. Found in gutter, wholly unconscious. The diagnosis of alcoholic coma having been made, $^1/_{12}$th of a grain of apomorphine was given subcutaneously. During the next five minutes nearly a gallon of a very heterogenous mixture, obtained from the last dozen free lunches he had visited, was expelled from his stomach, and immediately the patient talked intelligently, picked himself up, adjusted his hat and walked away very steadily and independently.

Case II.—D. T., James C. Jumped into the river with suicidal intent—was rescued with great difficulty by the crew of a passing tug boat. After fighting desperately. three policemen finally made him fast to a telephone pole in order to restrain him while waiting for an ambulance. Upon arriving at the hospital it required six men to overpower him and get him to a room; $^1/_{12}$th of a grain of apomorphine subcutaneously was given and immediatelly he was as docile and helpless as a babe. After retching some without much success he fell asleep, which continued for several hours. The next morning he very quietly accompanied an officer to the police station.

Case III.—D. T., John S., age 30. Had been on a protracted debauch and when first seen by the writer was terrorizing the inmates of the house, roaming about from room to room, entirely nude. This was not his first experience and he readily consented to take a hypodermic injection, supposing it to be morphine. I gave him $^1/_{10}$th of a grain of apomorphine, which thereafter kept him quietly in his bed, and soon induced several hours of sleep. The supplemental use of other medicinal and dietary means soon enabled him to return to his usual employment.

Case IV.—D. T., Sam S., age 40. When I was called he was keeping people at bay with an ax and making serious threats. He also readily submitted to a hypodermic injection, supposing it to be morphine; $^1/_{16}$th of a grain was followed by free emesis, mild prostration and the first sleep for three days.

I am confident that a small dose of apomorphine in delirium tremens will do more to keep the patient from doing harm to himself and others, than six men to hold him in bed, or a straight jacket, or a padded cell in a police station, with all the other medications combined.

The treatment begun with apomorphine and the patient quiet, other medicinal and especially dietary measures must be used. Repeat the apomorphine as often as is necessary to restrain the delirium. In this way immediate relief is afforded anxious friends, as well as the doctor and his patient.

D. Mereness, M. D.

(The Milwaukee Med. Journ., July, 1893.)

TO SEE ELECTRO-MAGNETIC WAVES.

A current of electricity in a wire affects the whole space about it to an indefinite distance, so that all magnets and all conductors of electricity tend to change their positions. When a magnetic needle is brought near to an electric current, it is seen to turn so as to set itself at right angles to the wire. The direction the north pole will move, depends upon the direction of the current in the wire. If the current be reversed so often that the needle does not have time to move to one side or the other, it will continue to point to the north, but it may be felt to tremble. Such an effect is due to the action of the current upon the ether, and in electrical science is called induction. The disturbance in the ether is transmitted by it at the rate of 186,000 miles a second, the same as light. A succession of reversals of an electric current sets up a series of waves in the ether, which will be short or long as the reversals are more or less frequent. If the current were changed once a second, the waves would be 186,000 miles long. If the reversals were produced 186,000 times a second, the waves would be only a mile long, and so on. Such waves are called electro-magnetic waves, and they may be produced in other ways than the above. For instance, a common permanent magnet, such as is used as a toy, has a magnetic field extending to an immeasurable distance about it. Every time it is moved in any manner, it disturbs the ether through the whole of space. If it be vibrated or rotated any number of times a second, it will produce a succession of waves similar to the ones described, and these waves thus produced and transmitted will reproduce, in other matter upon which they fall, electro-magnetic phenomena, and make the matter vibrate at similar rates.

Now, light is known to consist of ether waves, and such as can affect the eye are about the fifty-thousandth of an inch long. Electro-magnetic waves can now be artificially produced that are only a foot long. With improved methods these will be made still shorter, until they are of the proper length, when, there is every reason to think, they will be seen. Physicists have concluded that all light waves are due to electro-magnetic action among the atoms and molecules of matter. Meanwhile it has been found that such waves as we now can easily produce are capable of doing much of the work done hitherto with ordinary currents.

A. E. Dolbear.

(The Cosmopolitan, Aug., 1893.)

CREOSOTE IN CONSUMPTION.

The conclusions are as follows:

1. Creosote, when pure, is harmless.
2. It has no direct action upon the tubercle bacillus.
3. Tuberculosis pulmonum is chiefly a secondary infection by a streptococcus.
4. Creosote has no direct action upon this streptococcus; hence none whatever upon hectic fever.
5. It destroys lower organisms, especially those which produce fermentation, without affecting the process of digestion.

Hence, 6, the virtue of creosote, which is undeniable in most cases, is chiefly, but not wholly, upon nutrition.

James T. Whitaker, M. D.

(Therapeutic Gazette.)

Book Notices.

The Meaning and the Method of Life: A search for religion in biology. By George M. Gould, A. M., M. D. Cloth, 8 vo., pp. 297. New York: G. P. Putnam's Sons, 1893.

While the present work is in the nature of an ethical study, it is, nevertheless, based upon a comprehensive insight into biology, which promises to become in time the basis of medical study. Some idea of the intent and character of the book, as well as the versatility of the author, may be gained from a partial list of contents, as follows: Physical and Metaphysical, Partial Truths, Incarnation, Cytology, Sensation, Evolution, Reproduction, Personality, Immortality, etc. The following extract from the introduction will serve to indicate the thoroughness of the author's investigation, or rather, his willingness to investigate thoroughly:

> "The invisible life is an organizing power using matter as material, and intelligence and purposiveness are plain characteristics of the invisible life. Every cell and organ and organism shows presently-acting intelligence, healing power, adaptation to circumstance, resistance to or use of circumstance. It is plain that a practically omnipresent, invisible, living intelligent force is operating in and through every living thing. To identify matter and this living intelligence by any system of idealism, monism, pantheism, or materialisn, is to do violence to logic and misread the facts. The dark riddle of life is to explain why Life is thus incorporating itself in material forms, and why the peculiarities, course, accidents, length of progress and evils, of the process are as they are."

It is claimed that the book furnishes the keynote and method of solution of the riddle, and the chapter devoted to cytology, to which the writer has given especial attention, seems to show that our author has delved deep in order to insure a sound foundation. He says "*the physiological unit is the cell,* and that on its physical side, the conjoining of religion and biology is made clear by the *cell-doctrine,* which physiology and pathology have established as the fundamental truth of all biological processes." A single quotation, here, however must suffice to show the unbiassed manner in which the author approaches a very important subject. The question is, will these words be heeded?

> "The truth that CYTOLOGY IS MEDICINE", says Dr. Gould, "is illustrated by a number of facts, chief of which, of course, is the firm establishment and general scientific acknowledgment of the cellular pathology of Virchow. As all physiology is primarily and essentially the physiology of the cell, so all pathology is necessarily essentially the pathology of the cell. All scientific physicians are conversant with Virchow's great work and of the development of the doctrine, and its exemplification by every medical discovery. It is therefore useless to further emphasize or detail it. As the body is composed entirely of its cells, it is, indeed, a mere axiom, that disease must be disease of its cell.
>
> As physiological chemistry learns the facts of cellular nutrition, it will become more and more clear how the cell's vitality is lessened or interfered with by improper nutrition and microbic enemies. Slowly the prevention of disease is coming to be recognized as the great problem and the established fact. Already knowledge has outrun practice, because if the known truths of preventive medicine were applied, the present death-rate would be reduced by one-half."

Believing the claims to be warranted by the facts, from observation and experience in regard to the large number of preventable deaths, the question is, will the medical profession thank us for advising them to read and study the book, especially the chapter on cytology?

THE BACTERIAL POISONS. By Dr. N. GAMALEIA. Translated by E. P. HURD, M. D. Member of the Massachusetts Medical Society, and of the Climatological Society: one of the Physicians to the Newburyport (Mass.) Hospital. GEO. S. DAVIS, Detroit, Mich., 1893. (Price 25c.)

This book is the work of an author who is himself an eminent bacteriologist. The bacterial poisons is a subject of much interest and importance, and is here presented for the first time in a connected treatise. The translator has done his work well.

In introducing the subject, a reference is first made to studies of the chemical poisons of putrefaction and septicemia; then, as these failed to account for the phenomena of infection, the germ theory appears upon the scene, and passes through various stages of development, in succeeding chapters, leaving many highly interesting problems yet unsolved.

For a time it was supposed by bacteriologists, that infection is due to an invasion of the entire organism by the bacilli, but this was found not to occur in diphteria, cholera and tetanus. In these diseases the microbes are strictly localized to the mucous surfaces, or in proximity to the place of inoculation, and the infection of the system is admittedly due to the poisons which in each case the microbes produce, which are absorbed and thus cause a general intoxication or poisoning. This was proved by the fact that full toxic effects were produced by inoculations made with the poisons, after the bacilli themselves had been removed from the cultures by filtration. As a result of these and other similar experiments, "it has been established to a certainty, that the pathogenic microbes act on the animal organism by means of the poisons which they produce." (p. 37.)

A great deal of search has been devoted to ascertaining the chemical nature of these poisons. In many respects they closely resemble diastase. They have been supposed to be albuminose in their composition. After leading us through numerous experimental details, the author admits that at present "one cannot rigorausly determine the chemical nature of the microbian poisons" (p. 58), yet finally he suggests the hypothesis that they are the result of a decomposition of nucleo-albumins or vitellines (p. 63).

On the important question as to the source or origin of these poisons, the author says, "in all the history of the researches on the microbian poisons, the idea was generally admitted that these poisons take their origin in the course of the decomposition of albuminoid matters. This idea is prevalent at the present time.

Nevertheless there exist in science facts which completely overthrow it." As an example of the conclusive character of these facts, it may be mentioned that "the bacillus of diphtheria, when cultivated in filtered human urine, containing not a trace of albumin, produces its poison in that medium quite as energetically as in meat broth." (p. 68.)

The bearing of this conclusion upon Dr. McLaughlin's Physical Theory of Infection is highly important, for if this conclusion be maintained, then the greater part of the physical theory will require to be reconstructed, since instead of toxines and "toxalbumins" being the product of molecules of albuminoids disrupted by the bombardment of waves of ether set in motion by the molecular vibrations of the bacilli (as is assumed on the physical theory), an entirely new mode of action will have to be suggested to account for the production of the poisons by the bodies of the bacilli themselves. Thus opinions rise and fall, and truth slowly wins its way.

The mode of action of the poisons on the system is still undecided. Special chapters are devoted to the poisons of tetanus, diphtheria, cholera, tuberculosis, charbon and glanders, in reference to all of which the details are as yet very imperfect. The same may be said in regard to immunity. The reader will do well to study the work itself, only a few salient points of which are here referred to. P.

Music and Culture: Comprising a number of lectures and essays by Carl Merz, Mus. D. Edited by Charles H. Merz, M. D. Cloth, 8 vo., pp. 206. Philadelphia: Theodore Presser. (Price, $1.25).

The late Carl Merz was well known throughout the country as a succesful teacher and eminent authority on all subjects pertaining to music; in addition to this accomplishment, however, he was also a popular lecturer, educator and editor, and he has left to posterity a most interesting collection of essays, lectures and maxims which will serve to keep his memory green in the minds of his friends and patrons. These thoughts, however, are the thoughts of a master, a philosopher and a Christian, and their publication in book form will add thousands more to the present number of his admirers. The general character of the work may be estimated from the different headings of the various chapters. One is devoted to Genius, another to Success in Professional Life, one to Music of Nature, one to Philosophy of the Beautiful, one to Woman in Music, one to Memory, etc. No one can read these essays and lectures without feeling that they have been richly rewarded for the time spent in their perusal; but for the student in music and art they are doubly valuable, since they point out with special clearness the need for that peculiar training which goes to make the succesful artist. Our author was an artist in the truest sense of the word, and his sayings will long be remembered by all who are interested in the advancement of science and the upward trend in the domain of esthetics.

Transactions of the Medical Society of the State of Pennsylvania. 1893. Advance Proof from the Printers.

So far as received, the advance proof of the Transactions gives promise of being a valuable contribution to medical literature. The most important, perhaps, for the physicians of this great State, is the report of the Committee on Legislation, which, as previously announced in these columns, secured the enactment of a law requiring the Governor of the State to appoint three separate Boards to examine all applicants for permission to practice. The work was accomplished at an expense of over twelve hundred dollars. The next important matter for the Society to take in hand will be the unauthorized sale of quack and quasi-patent remedies which are now being so extensively advertised throughout the country, and sold by dry-goods stores, grocers, carpenters, plumbers, old women, and in fact everybody who is so fortunate as to have complaining friends and relatives.

Dr. Latta of Philadelphia delivered the address on medicine; Dr. Park, of Harrisburg, the address on laryngology; Dr. Weidman, of Reading, the address on surgery; and Dr. Curwen, of Warren, the address on mental diseases. From a modern standpoint the address which will call forth volumes of praise was that on hygiene, by Dr. Dixon, of Philadelphia. It should be printed with phosphorescent ink and a copy placed in the hands of every active business man all over the country, who would thus be enabled to read it after retiring to his couch for rest. It would give him a lively sense of the importance of sanitary science, and prompt him to investigate his physical surroundings.

ANNOUNCEMENTS.

Messrs. Funk & Wagnalls, of New York, announce the early publication of *"A Standard Dictionary of the English Language,"* which promises to excel anything ever produced in this country in the dictionary line. From a cursory examination of the prospectus and sample pages received, it is evident that no expense has been spared in the effort to make this work what its name implies, viz., *A Standard.* The editorial corps embraces many of the brightest lights in literature, each being a recognized authority in his own special department. According to Professor Hunt, of Princeton College, it will be *"the English people's word-book"*, inasmuch as it will be especially adapted to the large mass of those who consult a dictionary only on special occasions.

The scores of editors who have been so long engaged upon this magnificent work have constantly kept before them three things which will recommend it to the American public, viz.: *Simplicity, accuracy, comprehensiveness.* The *"distinguishing features"* are so numerous and attractive that it wouldbe a work of supererogation to further dilate upon its many excellencies. Advance subscribers are promised a liberal discount from the regular rates, so all who are interested should send for prospectus and sample pages.

Miscellany.

PHOTOGRAPHING WAVE MOVEMENTS.—M. Marey has succeeded in photographing the various forms of waves as they occur in water.

REMOVAL NOTICE.—Dr. Louis Lewis, a valued contributor to the THERAPIST, has removed to 2011 Arch Street, Philadelphia.

REMOVAL.—The Brooklyn Home for Habitués, Dr. J. B. Mattison, Director, has been removed to 188 Prospect Place, near Prospect Park.

THE HANBURY MEMORIAL.—The seventh Hanbury medal has been for the first time awarded to an American citizen, John M. Maisch, Professor of materia medica and botany in the Philadelphia College of Pharmacy.

SOUND-WAVE THEORY.—It is claimed the sound-wave theory has received a set-back by reason of the fact that the sound vibrations of the human voice can be transmitted perfectly through a solid mass of iron an inch thick.

GRAFTING ARMS.—A novel expedient is reported to be under consideration in New York, that of allowing a criminal liberty upon giving up an arm to some good citizen who is willing to undergo the operation of having one added to his own anatomy.

HYGIENIC TOBACCO.—A report has recently appeared to the effect that the inventor is about to take the sting—nicotine—from tocacco, by manipulating the crude product with oils and other substances, and consequently, the pipe business threatens to go into a decline.

PERCUSSION FOR HEADACHE.—To M. Dourdoki, of Moscow, should be given the credit for originality in the treatment of headache by percussion, in much the same manner as percussion is practiced in making an examination of the chest. It is presumed "hard knocks" are barred.

AMBER OIL.—This is an old and efficient remedy in suitable cases. It may be employed locally in rheumatism, lumbago, sciatica, and is efficacious in whooping-cough when thoroughly rubbed along the spine. Too much dependence, however, should not be placed in these local applications.

ABOUT RENEWALS.—A correspondent in the *Medical World* says one of his prescriptions has done duty for three different patients. That is a small matter; the writer recalls one prescription that has been "handed round," for several years, until now, the druggist has twenty-five bottles going.

DEATH OF DR. BALDWIN.—Dr. L. K. Baldwin, for many years the treasurer of the Philadelphia County Medical Society, and for twenty-three years medical officer of the Equitable Life Company in Philadelphia, died at his home last month from heart failure following upon throat trouble contracted on his return from abroad.

MECHANICAL TREATMENT OF CONSTIPATION.—In the treatment of chronic constipation occurring in women after accouchment, in hemorrhoids and in heart and kidney affections, Dr. Feilchenfeld employs a bag containing three or four pounds of shot, the same being moved about over the abdomen for an hour, or left over night if necessary.

BISMUTH IMPURITIES.—The fact that bismuth contains impurities ought to be more generally known. Gold, copper, lead, arsenic and antimony may interfere with its proper physiological actions when given for the cure of disease. Recent methods of preparation, however, are said to be sufficient to remove objectionable substances.

SYNTHESIS OF AIR.—Prof. Dewar has recently accomplished a feat never before undertaken, namely, that of producing atmospheric air by synthesis. Fluid nitrogen and fluid oxygen were mixed together in the proportion of four to one and, of course, when they returned to the gaseous state the combination resulted in the production of atmospheric air.

LEGHORN is severly attacked by cholera; on September 11th, 265 cases and seven deaths were reported; Naples, Palermo, and other Italian cities are also afflicted, and isolated reports come from Constantinople and other Mediterranean ports. The precautions at our Atlantic ports are stringent, and we will probably be spared last years' imminent danger.

THE MISTAKE OF OVER-FEEDING.—At last a respite is promised in regard to over-feeding, the Society of Hygiene in Vienna having sent out a circular letter to a large number of very old people, asking them to give particulars in relation to their habits. It is believed that by putting the food question upon a scientific basis human life can be materially extended beyond its present limits.

CHOLERA IN JERSEY CITY.—The few cases which recently gave Jersey City a cholera scare, and in consequence of which a hospital was established at Snake Hill, and conferences were held in which the N.Y. Health Officer, Dr. Jenkins, and Surgeon-General Wyman participated, have been disposed of, the quarantine regulations have been suspended, and all the excitement is over. All the anxiety was groundless.

GARLIC *vs.* CHOLERA.—Although coming rather late in the season, it will be interesting to know that those persons exposed to the fumes of garlic and onions have not been attacked by cholera in any considerable number. Persons accustomed to the daily use of these products as a food have, it is said, enjoyed comparative immunity from the disease, even when the insanitary condition of their homes might be supposed to predispose them to attacks.

RAISING BREAD.—In the raising of bread the yeast fungi effects a destructive fermentation of a part of the starchy portion of the flour, one of its most valuable nutrient elements, and as soon as this process has advanced to a certain stage it is arrested by heat. The flour used in the manufacture of crackers is not subjected to this process, which accounts for the fact that when taken into the stomach in considerable quantity, it proceeds to *raise Cain.*

WOMAN'S NATURAL INSTINCT. — Philosophers and humanitarians who have been racking their brains to account for the fear which is characteristic of woman in the proximity of cows, will be glad to learn that cows are the great enemies of man. Prof. Hugo Holsti, of the University of Helsingfors, has demonstrated by actual investigation of statistics that the greatest mortality from tuberculosis occurs during the period when children are fed on milk.

TO STUDY LEPROSY.—Father Sauton, a Benedictine monk, trained in medicine, has been commissioned by the French government to visit the leprous districts of Norway, Lapland, Finland, Turkey, Asia Minor, Greece and Egypt, with a view to obtain facts in regard to the history of the disease, and finally to make a report to M. Pasteur in the expectation that the latter will be able to advise measures for its successful treatment.

SICKNESS CAUSED BY OPENING STREETS.—During the past summer the streets of the city of Philadelphia have been in extremely bad condition, and physicians have made complaint to the Board of Health. It does seem strange that in a city as large as this, some method of thorough disinfection of the upturned earth should not be insisted upon by the authorities. The death-rate of their constituents seems to have no terrors for the politician.

CULTURE A SOURCE OF HAPPINESS.—According to the Philadelphia *Public Ledger*, "One very efficacious method of increasing the amount of happiness in the world is to increase the capacity for it. No vessel can receive more than it can hold, nor can the mind of any man; but the difference is, that while the limits of the former are fixed and unalterable, those of the latter are capable of continual enlargement." It would be interesting to draw a moral, but we refrain.

THE AIR WE BREATHE.—An analysis of dust particles by a Paris scientist shows the remarkable conglomeration of objects which may find access to the pulmonary structures in a large city; in Paris they include silex, chalk, plaster, pulverized rock, charcoal, hairs, fibres, vegetable refuse, starch, pollen, cells, etc. A specimen of dust collected from a room in the third floor of a house in Rennes contained all this, and nearly three million bacteria in addition. M. de Nansouty estimated that fifteen grains of street dust contained about 130,000 bacteria.

DETERMINING IMPURITIES IN AIR.—An English scientist has constructed an ingenious instrument by which the degree of impurity which may exist in the air of any room or place can be determined easily and accurately. The device is based on the ascertained fact that a particle of dust at a certain temperature and degree of moisture in the atmosphere becomes a free surface which attracts the moisture, and thus turns into a cloud-particle. By passing a jet of steam through a tube containing air impregnated with dust it is found that colors, varying from a delicate green to deep blue, are exhibited by the particles of moisture thus formed. Each of these tints, which may be checked off by tinted glass, indicates the degree in which the air is impregnated with dust-particles.

The average degree of impurities in well ventilated living rooms is estimated at about six per cent., while that of the rooms occupied by professors and students in medical colleges ranges from seventeen to thirty-five per cent.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, OCTOBER 16th, 1893. No. 4.

Original Articles.

*THE THYROID TREATMENT OF MYXEDEMA.**

By J. LINDSAY PORTEOUS, M. D., F.R.C.S., Ed.

In my article published in the July number of the AMERICAN THERAPIST, I endeavored to give the history, etiology, pathology and treatment of myxedema. I also recorded the particulars of a case under my care which had promptly and thoroughly responded to the new mode of treating the disease. I referred to photographs taken, showing the condition of the patient before beginning treatment, four days after treatment had properly begun, and one taken about six weeks from the commencement of the administration of dissicated sheep's thyroid. Copies of these three photographs are herewith (page 98) presented. At a glance, the marked improvement can be seen. The stolid and almost imbecile stare and puffed up cheeks begin to disappear even at the end of four days. At the expiration of six weeks the original features of a handsome woman are obviously delineated, so that there is little resemblance between the first and last of these pictures.

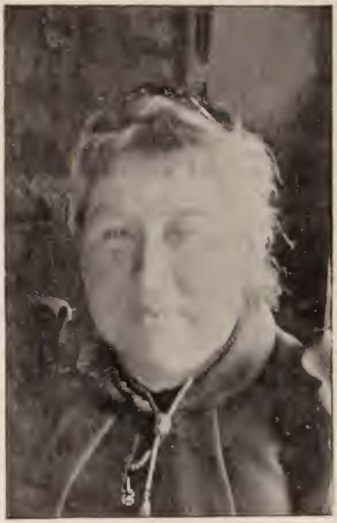
In my previous paper I had neither time nor space to enter fully into the diagnosis of myxedema. I now propose to tabulate the chief distinctions between myxedema, acromegaly and exophthalmic goitre. (See table on page 99.)

Although some authors have endeavored to prove a certain analogy between these diseases, I think that by comparing the principal diagnostic features put forth in this table, it will be very simple to separate one from another.

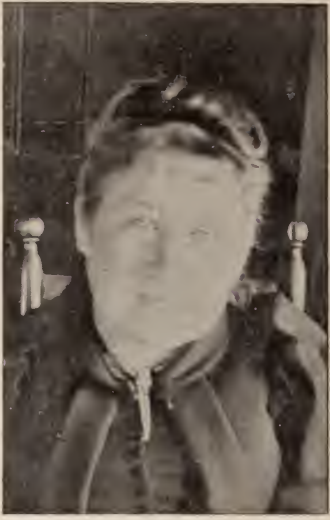
At the recent meeting of the Bristol Medical Association, held at Newcastle-on-Tyne, Dr. Clouston, Medical Superintendent of the Royal Edinburgh Asylum, made some very interesting remarks about the mental symptoms of myxedema, and the effect on them of the thyroid treatment. He remarked that in almost every fully reported case of myxedema from Sir William Gull's classical case onwards, mental changes in the patient of a pathological nature were noticed, though they did not necessarily amount to insanity. Nine cases had been under his care at the asylum, having been sent their suffering from insanity accompanying myxedema. There were eight women and one man. One had symptoms of suicidal melancholia; one simple melancholia; the other seven were cases classified as mania on the first admission. Two of these, after their discharge, were readmitted as cases of melancholia. The symptoms differed greatly in different cases, and often at different times, running upwards from general simple mental exaltation, systematized delusions of grandeur, up to inability to understand simple questions, with delusions and incoherence. All began the same way, by slowness of mental action and lethargy; most then became depressed; next, irritable, morbidly suspicious, and finally, had loss of self-control. Under the discipline of asylum life, seven were discharged as "recovered"; that is, no longer technically insane. Two of these had relapsed and were readmitted. The cases that had lasted long showed signs of general enfeeblement of mind after the early acute

---

* Addenda to a paper published in the July number of the AMERICAN THERAPIST.



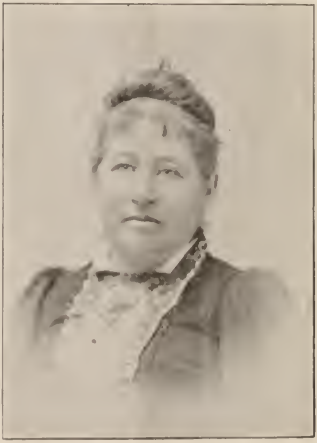
BEFORE TREATMENT.



AFTER 4 DAYS OF TREATMENT.

symptoms had passed off. Three of the cases had died in the asylum. Before death, a very striking hebetude and mental torpor had come on. The last two cases had been treated with the thyroid extract and made satisfactory recoveries, both from the myxedema and from the insanity, and were discharged, although one died at home from over-exertion and whiskey.

From observation Dr. Clouston found that in seven of these, sensation was blunted; the memory was affected in eight. The normal power of attention was diminished in all the cases, with an accentuation of the attention on disagreeable things, and on delusions in six cases. There were hallucinations of the senses of sight, hearing and smell in four cases. In every case the affective faculty was abnormal, natural affection being diminished in all, and in most, hatred set up instead of love, to near relations. There was depressed emotion in five cases, exaltation of feeling in three. The intellect was affected in all by slowness in working and delusions, mostly of suspicion in six cases. Volition and



AFTER [illegible] WEEKS OF TREATMENT.

the originating faculty were impaired in some way or other in all the cases. Within the first month, the thyroid treatment showed its effect in mental improvement. A slow, intermittent treatment by small doses—one-sixteenth of a thyroid a week—was found to be, on the whole, the best. Those two patients treated by thyroid extract recovered entirely, both mentally and physically, within six months. One most

MYXEDEMA.—DIFFERENTIAL DIAGNOSIS.

MYXEDEMA.	ACROMEGALY.	EXOPHTHALMIC GOITRE.
Sex: Most frequently females.	Most frequently males.	Rare among males.
Age: Average, 45 years.	Average, 24 years.	Average, 25 years.
Thyroid gland: Much diminished—often disappears altogether.	Usually small, but never absent.	Much enlarged; enlargement paroxysmal and pulsating.
Heart: Palpitates easily, but not diseased in any way.	Usually hypertrophied; dilatation often present.	Functional disturbance of the circulation and heart occur at frequent intervals; palpitation, face-flushing; sensation of fulness felt in head, eyes and throat.
Premonitory Symptoms: Alteration of temper; irritable and depressed.	No appreciable change	Irritable and depressed.
Eyes: Sight slightly impaired; eyelids drooping, giving patient a drowsy appearance.	Sight impaired; eyelids elongated and thickened, and the tarsal cartilages hypertrophied.	Lustrous, projecting; loss of coördination between movements of eyes and eyelids; no disturbance of vision.
Skin: Dry and scaly; no moisture at all. Brown patches on side of cheeks; pink, deepening to purple hue over malar bone.	Flabby and dry; natural color.	No alteration, but pale.
Urine: Quantity diminished as a rule.	Quantity increased	Normal.
Temperature: Below normal, varying from 94° F. to 97.5° F.	Normal	Frequently high.
Larynx: Seems puffy.	Enlarged	Not enlarged.
Duration: From 4 to 12 years.	From 20 to 30 years.	May go on increasing for several months, then become stationary for two or three years, and may then disappear.
General Appearance: Whole body more or less swollen; face round like an orange.	The bones of the extremities and distal ends of the bones are the parts enlarged. Face elongated.	The enlargement of the thyroid and protrusion of the eyeballs are the only deformities.
Psychical Functions: Stupidity, dulness of comprehension; often insanity in various forms, as simple melancholia, suicidal melancholia, mania, differing widely in different cases. All begin with slowness of mental action and lethargy.	Not usually impaired	Never impaired.
Hair: Coarse.	Coarse	Normal.
Voice and Speech: Subdued and slow.	Loud and deep; not necessarily slow.	Normal.
Feet: Thickened all round.	Large cushion of flesh along outside border.	Normal.
Tongue: Hypertrophied.	Greatly hypertrophied.	Normal.
Nose: Enlarged and spread out like that of a negro.	Enormously enlarged all over.	Normal.
Pathological Appearance: Thyroid gland either atrophied or flabby and thin.	Small, but not absent.	Much enlarged—at first, from dilatation of the vessels, the glands, and, as disease advances, increased formation of tissue may cause it.
Pituitary Body: Congested; capillaries distended.	Hypertrophied with dilatation of sella turcia.	Not affected.
Thymus: Thymus gland absent.	Present.	Absent.
Nervous System: Little change; only indications of chronic neuritis in the peripheral nerves.	Hypertrophy of the fibres and ganglia of the sympathetic system.	Increased connective tissue and diminution of ganglionic cells.

encouraging fact is, that there has not been a single case reported which has failed to respond to the thyroid treatment.

Since writing my last paper, I have carefully read all the literature I could obtain bearing upon the subject, and can find no case reported where a return of symptoms has taken place. Some have, after a period longer or shorter, of the thyroid treatment, discontinued its use and no relapse has taken place. Many still continue to take the thyroid in one form or another so as to ensure a cure. The case I have under observation comes under the latter category. The patient is well and strong, able for all duties and capable of enjoying a life which, for years, had been a blank.

As I have already stated, time must elapse before we can pronounce the treatment a "specific", and I thoroughly believe that, especially in those cases where only the function of the thyroid has been suspended, the medicine, in time, can be dropped, and the permanency of the cure established.

83 Warburton Ave, Yonkers, N. Y.

THE THEORY OF REVULSION.[*]

By Prof. Dr. Hugo Schulz, of the University at Greifswald, Germany.

Gentlemen:—In opening my remarks on "revulsion," the subject which I presume to present to you on this occasion, it would seem requisite to first furnish a terse and concise definition of what is understood by the term; but the limits of application of revulsion are so extended, and comparatively so little classified, that it will be better to let the facts patent to it take precedence.

The utilization of "*revulsion-therapy*," if we are to employ the term, is ancient —as old as the practice of medicine. The application of all kinds of irritation, including the simple rubbing with warm oil, irritation of the skin with ordinary sinapisms, ointment of tartarated antimony, croton-oil, ice-bags and warm cataplasms, the manifold externally applied hydrotherapeutic measures, possibly also cold and shower-baths, originally intended to act as antipyretics, and finally also the use of dry- and leech-cupping in certain cases, and of bleeding under similar conditions—all these signify the introduction and practice of the revulsive method.

Experience has taught us the changing indications for each of the enumerated methods according to the demands in specific cases; but the fundamental intention, the ultimate effect to be achieved, is identical in all. We desire by these means to influence in a curative way, superficial or deep-seated, more or less painful, local or general, acute or chronic affections. Experience at the sick-bed, the only authoritative and reliable basis of every therapeutic method, has proved the utility and value of revulsion-therapy. I need not take up your time with examples or proofs, which can be found in all records of scientific and lay medical practice; but it is different with the theoretical aspect of the subject, the question of the why?

It is plain that in answering this question, pure speculation will be of little or no avail; not even though reinforced by abundant and accurately noted clinical evidence. Experimental treatment, properly directed and completed, must corroborate the attempt to answer the query.

The first efforts to adduce experimental evidence concerning the methods of revulsion, originated, if I am not in error, in France. In that country the application of epidermic counter-irritation of varied kinds, is in greater favor than with us. Francois-Frank recently published a record of experiments, the results of which I will briefly narrate. He studied the influence on animals of skin-irritation on the internal vessels and the effect on the heart. He found that the largely increased capacity of the superficial blood-vessels, the accomplishment of which proved the truth of the old saying: "*Ubi stimulus ibi af-*

---

[*] Address before the Greifswald Medical Society.

fluxus," is accompanied by a contraction of all vessels of the intestines, the abdomen, the chest, and the brain, whereby a reduction of the hyperaemia of these organs follows at once. The increased arterial pressure, due to the contraction, is however compensated for by the notable dilatation of the superficial vessels (angiectasis). The action on the heart, *i. e.*, its behavior under such conditions, could not be guaged accurately enough to justify further deductions. Even though a normal heart seems not to be endangered by the modified pressure, this can hardly be presumed in case of existing cardiac disease, and Frank himself especially emphasizes this point. Further on he speaks of the unusual behavior of the nervous system, the increase and decrease of the excitation (or stimulation) of the separate nerve-groups under the influence of skin-irritants. But here he enters the domain of hypothesis; at least I can find no logical explanation for these interesting phenomena on the assumption of dynamic effects with dynamogenic reaction as in case of awakening from a faint, under the influence of a skin-irritant; or of a depressive dynamic effect if the repression (alleviation) of a deap-seated pain is required.

From a different direction the same subject has recently been investigated in Germany by Samuel.* The results of his observations are at first glance of a surprising nature. He rubbed the ear of a rabbit with croton oil, and then held the other ear submerged in cold water for a while. The effect was that the otherwise unavoidable inflammation of the crotonized ear did not occur. That this was not due to a reflex-action, in the sense that through the cooling of the non-crotonized ear the sensory nerves of this ear were excited and transferred this excitation to the vaso-motors of the crotonized ear, is proved by the fact that after severing the sympathetic nerve on the crotonized side the inflammation was just as little induced by cooling of the normal (healthy) ear as before the paralyzing, *i. e.*, elimination of the sympathetic. It developed further that the same favorable result of non-appearance of an inflammatory condition could also be accomplished by cooling off any other extremity instead of the opposite ear. The possible blood-cooling attending these experiments is actually of no moment. Cold water infusions into the ear-veins, even if repeated from time to time, only slightly retarded the action of the croton oil. The results from subcutaneous injections of cold water were the same.

The inflammation caused by the external application of croton oil on the skin, as is well known, always requires some time to develop and manifest itself. Considering the duration of any of the aforementioned experiments, we might certainly speak of a chronic reduction of inflammation. The question might, therefore, be further raised: What would be the conditions, if an acutely increasing or developing inflammation were to be treated in the same manner?

To answer this question, Samuels offered the following explanation, in the presentation of which I will employ his own words:

"If you scald one ear with water of 54° C. (129.2° F.) for 3 minutes, and then dip the other continuously in water of 15° C. (59° F.), naturally the primary effect on the scalded ear would be as usual. All appearances of acute inflammation would ensue at once, with the expansion of all large vessels and the diffuse atonic capillary-hyperemia with echymoses; nor would the swelling due to the entrance of exudation be lacking; in short, we would immediately have the old, well-known picture of inflammation before us. The incipient form is the same, and must be so. But whatever is not perfect, will not become perfect. While, usually, under strong arterial congestion from the inflammatory area the distribution at the arteria auricularis in the inflammation focus, and thereby all other blood-vessels, are filled more and more, and thus the exudation progresses to the formation of the blisters,—the trunk of the arteria here is narrowed (the longer, the more) in the lower part of the ear, which naturally produces a diminution of the blood-supply. It may now happen, that the peripheral end of the arteria in the inflammation focus dilates at the distal point and is compressed (narrowed) at the base in the inflammatory area, so that a pronounced contraction between the narrow trunk and its elongation is made manifest. Hand in hand with the diminished content of the dilated vessels by the scalding, we have the reduction of caloric and redness, as also decrease in exudation. The comparison with an ordinary case of scalding at 54° C. demonstrates that the inflammation, despite the immediate effect, is developed less rapidly, and is generally milder. So far as the entirely different conditions of a scalding permit, we see in this form of inflammation also an analogous retarding effect of the cold-water bath."

---

* Zur Antiphlogose; Virchow's Archiv, 1892, Bd. 127.

While the described experiments were made on rabbits, which are characterized by a peculiar behavior of their vascular innervation, and the further application of such treatment on other animals, and particularly on human beings, is not readily possible, we nevertheless teach that under favorable conditions, effects can be achieved such as have been described. We gather from all the experiments so far made, and by simultaneous consideration of clinical observations in the field of revulsion-therapy, that the vascular system is called to play a very particular part in therapy.

Just here, I would like to refer briefly to two points, which are deserving of attention from this stand-point, even though no less clear in their characteristics than those mentioned at the beginning of my remarks: The binding (ligating) of distantly situated organs in cases of persistent hemorrhages, and the so-called "Besprechen" (talking over—or at),—an ancient custom, sacred to the common folk and known in detail only to the initiated, for treating bleeding (hemorrhages), burns, and fever attacks in manner so grateful to the patient. In the latter case we find a revulsion induced by psychic influences; but the bandaging of limbs probably produces a reflex contraction of the bleeding vessels. I think I do not exceed my limit in also registering these two healing methods under the caption, revulsion, without, of course, thereby testifying to their pronounced efficacy or approaching scientific value.

How, now, are we to estimate the actual healing effects of the various kinds of revulsion? That changes in the circulation play a part in the process must be clear, and cannot be denied; but how do they act, and on what is their actual curative value based? I will attempt to at least partly answer these questions.

Let us assume that we have a case of very simple angina, induced by a cold, that is, a sore throat. We advise the patient to apply a Priessnitz-bandage around his neck when retiring to bed; and if luck is with us, and it is really only a plain, incipient angina catarrhalis, the patient will be all right by the next morning. What has transpired meanwhile?

The first thought, often expressed in discussing this subject, is that the chill which is produced by the application of this bandage, effects a reduction of the inflamed pharyngeal mucous membrane. But a momentary consideration will convince you of the error of this suggestion. How can the chill penetrate through skin, fascia, musculature, and all else that lies between the bandage and mucous membrane of the pharynx? There must be a different process, and we have seen that the externally applied skin-irritation works changes in the fullness of the deep-seated vessels. A second point against the sole action of the cold application is the increased heat of the skin resulting therefrom; this would counteract the effect of the preceding chill.

The case is actually this: From the very moment when, through any outward manifestation, the incipient angina shows itself, the affected tissue is no longer normal, but of a pathologic nature. This pathologic condition may be scarcely noticeable, and only after its further development does the patient feel, and the physician eventually see, that all is not as it should be. Now I think, that the paryngeal mucous membrane, in our case, formed the *locus minoris resistentia* for such external influences which are at all suitable for producing a "cold." It comes to pass, however, and the result is at first an inconsiderable change of the circulatory condition of the pharygeal mucous membrane, and thereby—and this is the special feature—material changes in metabolism. Only such organs the circulatory conditions of which are in perfect order, can fully perform their physiological functions. A minimal variation from the normal may be the beginning of a severe sickness, and may make the organ the fructifying seat of the most dangerous infection-material. The interruption, the variation from the normal, need not, of course, always occur in the vessels; the cell-elements of the tissue can, under certain circumstances, produce pathologic conditions; but there can be no separation of the actual tissue from its vascular network. The most comprehensive solidarity exists between the two. The immediate result of an interruption of the normal condition is, further, the insufficient elimination of the products of metabolism of the diseased tissue. The eliminating function is itself in disorder; tonicity and vascularity are changed and unable to fulfill their purpose. And herewith the possibility of an extension of the diseased condition is furnished. Every product of metabolism induces for the organ, and the organism producing it, an irritant, an attack to which it must succumb when the elimination of the decomposed material is made impossible. Certainly the products of metabolism of a diseased organ, whatever they may be, act themselves as agents for the further progress of disease.

If the primal interruption (affection) is a mild one, and the conditions are such that it and its products (effects) can be properly manipulated by the organism itself, then the cure follows promptly. If the conditions are not so favorable, then we must contribute assistance. In our hypothetical case we called revulsion-effects to our aid. By applying the external skin irritant,—by the first induced chill (coldness) and the following moist warmth and its effect on the condition of the skin, we changed the circulation in the interior. This resulted at once in a changed supply and circulation of the blood, which in turn favored a more thorough distribution within the diseased tissue, together with the elimination of accumulated harmful material, and the introduction of new nutritive matter.

In light, incipient attacks, this would suffice; but if the disturbance is of a severe nature, or is of long standing, and if, in consequence, actual and pronounced tissue-anomalies have formed, then so simple a treatment as the application of a Priessnitz-bandage would be of no avail. More energetic measures must be adopted to achieve the necessary reaction; sinapisms, blistering cerates, etc., are indicated.

In such case we must repeatedly, and —according to the pathological affection—variously attempt to stimulate and improve the circulatory condition of the diseased organs. That cures can be achieved in this way, experience, the mother of all sciences, has proved. None will deny that revulsion-therapy has its limits as have all others. It would be going too far, if at this time, we attempted to discuss the revulsive action of venesection in chlorosis, various forms of massage, or finally even the wonderful influence which sometimes a present erysipelas exerts on the absorption of a deeper-lying tumor—often of doubtful kind; the more so, as none of us yet have conclusive arguments at command for all these points.

At any rate, revulsion-therapy is a most interesting part of general therapeutics, and on this score I ask your indulgence for having presented too sketchy an address on matters of such common knowledge.

HOW "INHIBITION" AND "INTERFERENCE" MAY BE DISPENSED WITH.

A NEW THEORY.

BY THOMAS W. POOLE, M. D.,
M. C. P. S. Ont.; Fellow of the American Electro-Therapeutic Association.

(*Concluded from page 78.*)

In accordance with the assurance contained in the closing sentences of the previous paper, I now proceed to a practical illustration of the adaptation of this new theory to explain the problems for which the hypotheses of inhibition and interference seem but ill adapted.

In doing so, I shall begin where Dr. Brunton began, with the problem offered by the frog poisoned with atropine or morphine, till apparently dead, as already presented in the previous paper.

The points to be explained are:

1st. The prolonged period of muscular flaccidity (4 or 5 days) followed by the still longer period (17 days) of what Dr. Brunton calls special excitation, as shown by spasms and tetanus.

2d. Why in the first part of the experiment, neither a faradic nor a galvanic current was able to elicit any reflex response; while in the second stage "a slight touch" ushered in a violent convulsion.

3d. How it is that the symptoms here produced by atropine and morphine, are "exactly similar to those produced by the successive removal of different parts of the nervous system from above downwards."

These are surely interesting problems, which, it is apparent, the hypotheses of inhibition and of interference have failed to elucidate in a rational or satisfactory manner.

I begin by accepting unreservedly that portion of Dr. Brunton's exposition, in which he says: "The action of the [atropine and] morphine here appears to be clearly that of destroying the function of the nerve-centres from above downwards" (page 159). There is, indeed, good reason for this condition of nervous paralysis, because, during the four or five days of apparent death, the almost complete arrest of respiration and circulation of the blood reduces its oxidative processes to the lowest ebb. It could not be otherwise, because "respiratory movements are entirely abolished", and the "occasional beat of the heart is scarcely perceptible" (p. 158). It is on the oxidative process, thus almost extinguished, that nervous and muscular activity depend, and both, it is evident, are reduced to the lowest point consistent with life. There is no pabulum from which the nerve-centres could generate the nerve impulses supposed to be in active antagonism, on the hypothesis of interference, because oxygenated blood is an absolute necessity for nerve activity. There is, then, a failure of nerve power, not only from the deficiency of oxidation, but also from the direct paralyzing action of the narcotic on nervous tissue; and in consequence of this failure, the motor nerves would be wholly unable to restrain the muscles, and continued spasm would result, were it not that muscular contractile power is also enfeebled from the same causes, and the muscles are consequently unable to take advantage of the cessation of nervous restraint.

Dr. M. Foster would evidently agree with this statement as to the condition of the muscles, for he tells us in his "*Physiology*" that "blood is not only useless but injurious unless it be duly oxygenated". And again, "if venous blood be driven through a muscle, the irritability of the muscle is lost even more rapidly than in the entire absence of blood" (pp. 126, 883). Contractile force fails in the muscle, because these chemical changes on which it depends cannot take place in the absence of oxygen. Hence the "flaccidity" of this first stage, as mentioned by Dr. Brunton, though it appears the muscles had not wholly lost their irritability.

The reason of the absence of reflex action even to an electric current is also apparent on this view of the case, for a paralyzed nerve "can neither receive impressions nor transmit them" (Dr. C. B. Radcliffe, *loc. cit.* p. 78).

The explanation is also to be found here, of why the effects of atropine and morphine poisoning so closely resemble those of ablation of successive portions of the nervous centres. Paralyzed nerves, or nerve-centres, are functionally inert, and might as well be absent so far as motor or reflex purposes are concerned.

As the more deadly effects of the poison pass off, respiration and circulation revive. Oxidation is resumed, and the muscle-force which, compared with nerve-force, is the hardier and more enduring of the two, seems to regain its activity soonest, as it is also the last to fail (Dr. Brunton's *Pharm.*, p. 229). The nervous tissues have suffered most from the poison and are the slowest to recover. As both the nerve- and muscle-power improve, the nerve is barely able to keep the muscle in restraint, and the equilibrium of power between them remains so nicely balanced for several days, that a touch, or other slight perturbing cause, by disturbing the nerve-molecules, annuls their power for the moment, setting the muscle free to contract, thus causing a spasm, or a succession of spasms, in proportion to the relative freedom of the muscle and its nervous restraint.

On this view of the case, the condition is not one of increased reflex activity—meaning thereby increased functional power—but is due to the lowered activity of both nerve and muscle, and the nice adjustment of the balance of power between them, which is ordinarily only slightly in favor of the nerve.

As Dr. Brunton has well remarked, the assumed spinal "excitement" of atropine poisoning is quite similar to what occurs in strychnine poisoning. The explanation first given applies here also, and its truth is borne out by the fact, that strychnine is not a true spinal stimulant. Dr. Ringer tells us, that, "after traumatic and strychnine tetanus, the functions of the motor nerves and muscles are depressed, the motor nerves conveying impressions inperfectly". But may not this depression be due to a reaction from the previous over-excitement? Dr. Ringer says, No! and adds, "strychnine directly depresses motor nerves" (*Therapeutics*, 5th ed., p. 499). It is during this depression of the motor nerves that their restraining power over the muscles is so reduced that the faintest shock, even a breath of air, sometimes suffices to annul it completely and set the muscle free to exert its inherent contractile power.

The foregoing solution of the problem involved in the apparent death and subsequent seeming "excitation" of the spinal cord, in the frog, has the merit of rendering it unnecessary to assume that profound paralyzers like atropine and morphine "first paralyze and then stimulate", or *vice versa*, a phrase too often occurring in medical literature in reference to the action of drugs of this class. Here the seeming death and subsequent apparent "excitement", are really parts of the same uniform process of paralysis, differing only in degree. For "it is evident that all the phenomena of narcosis, whatever their external appearance, result from devitalization of that part of the nervous system which is immediately concerned in their production: the idea of vital exaltation in the brain, for instance, going on simultaneously with vital depression in the spinal cord, or *vice versa*, is inconsistent with what any unprejudiced experimenter must obsersve, *viz.* :—that the process of narcotism is an *uniform* one, and tends entirely in the direction of nervous death" (Dr. F. Anstie, *Stim. and Narc.*, p. 408).

Dr. Brunton thinks he sees in the hypothesis of interference, an explanation of the fact, that an excess of oxygen when inhaled, produces a similar effect to a deficiency of oxygen, the result in both cases being dyspnea, asphyxia and death.

On the hypothesis of interference, he tells us, it is assumed, that "the absence of oxygen retards the transmission of impulses in the nerve-centres, so that we get those which ought ordinarily to inhibit one another coinciding, and causing convulsions. Increased supply of oxygen gradually quickens the transmission of impulses until the waves first reach their normal relation, and then the normal rate being exceeded, the impulses once more nearly coincide and convulsions are produced a second time" (*Ib.*, p. 162).

Here there is an abandonment of the theory of the text-books, which is, that the absence of a normal supply of oxygen, as in impure venous blood, acts as a stimulant to the nervous centres. Dr. Brunton, ignoring his own teaching on this point, yields to the exigency of the hypothesis he is advocating, and finds that here a deficiency of oxygen, instead of stimulating, as in other cases, retards nerve action, or in other words, lessens the activity of the nerve-centres, which is only another way of saying that it induces a degree of partial or complete paralysis, which is what I have been urging elsewhere.

In regard to the effects of an excess of oxygen, from which "animals die of asphyxia and convulsions exactly in the same way as when oxygen is deficient" (M. Foster, *Phys.*, p. 447), the explanation on the theory I offer, is easy. As is well known, the oxygen of the air enters into combination with the hemoglobin of the blood, and as thus loosely combined (oxy-hemoglobin) is readily removed and replaced, and so is available for the purposes of oxidation in the internal respiration of the tissues. But when oxygen gas is inhaled, or when ordinary air is breathed under a pressure of twenty-five atmospheres, the excess of oxygen thus introduced, enters into a more permanent combination (methemoglobin) which does not give back the oxygen with sufficient readiness when needed in organic use. Hence, though oxygen is present in excess (as in the case of carbonic acid poisoning) it ceases to be available, and the results are the same as when oxygen is deficient. That there is really a deficiency in the consumption of oxygen here, is shown by the lessened elimination of carbonic acid.

The poisonous effects of the nitrites, which act by liberating oxygen in the blood, also cause dyspnea, asphyxia, convulsions and death, from deficient oxidation, "the oxygen being locked up in the methemoglobin" (Dr. Brunton's *Pharm.*, pp. 80, 214, etc). I think the candid reader will agree with me, that with such an explanation as this available, based as it is, on sound physiological principles, a resort to such an hypothesis as that of nervous interference is unjustifiable and wholly unnecessary.

It is a problem, which our text-books and medical teachers have been unable to explain, why the muscles of a limb paralyzed to the will, respond to a much more feeble current of electricity than do the muscles of a healthy limb, with normally acting nerves and muscles. The theory I am advocating explains this problem. Electricity is a paralyzing agent to nerve function,* and a slighter degree of paralysis suffices to annul nervous restraint in enfeebled nerves than in healthy ones, and to set the muscle free. If electricity were a stimulant to nerve function, the contrary result would be found, and the muscles of the healthy limb would be the ones to show the response to a weak current.

I have before me the "*Archives de Physiologie*", Nos. 1 and 2, 1889, of which Dr. Brown-Sequard is editor-in-chief. This distinguished physiologist may be termed the father of inhibition, and in the issue of the publication just named, offers seventeen different examples of alleged inhibitory action, without by any means exhausting the series. The 10th of these is headed, "Inhibition of the convulsing power of the spinal cord by a medullary irritation". Of this he says: "If we cut transversely, the spinal cord, in the dorsal region, in a mammal, convulsions frequently occur in the posterior limbs. This is more frequent in the case of hares than among other mammals. The hares have almost always convulsions which consist in movements perfectly regular, despite their violence. There are complete kicks, absolutely similar to those of horses. It seems strange that, if we cut across, transversely only a lateral half of the spinal cord, it is exceedingly rare that convulsions occur in the posterior member on the side of the section. There ought to occur in this member kicks and convulsions repeated several times and with violence".

---

* For the proof of this, see the papers previously referred to.

Dr. Brown-Sequard says, in explanation of the above, "experiences, very varied, have shown me, that if convulsions fail here, it is due to an inhibition of the convulsive power (puissance convulsivante), of the dorso-lumbar cord. I am assured that the irritation mounts up in the corresponding side, as far as the cervical region, and perhaps even to the encephalon, and then descends by the other side (the uncut side of the cord) and passes thence into the rear of the point of section to the dorso-lumbar swelling of the cord, where it inhibits the convulsive power. If the two sides of the dorsal cord are cut, the inhibitory irritation returning from the cervical region of the cord cannot pass, and the convulsions are prevented from taking place" (p. 13).

This exposition of the case is certainly sufficiently dramatic. The inhibitory force is rushing up and down the spinal cord in search of its rival and foe, the convulsive power; but the latter cautiously entrenches itself in the lower segment of the spinal marrow, and from behind the barrier of the section in the dorsal region, hurls defiance at its pursuer! Von Helmont, long ago, got on very well with one imaginary demon,—the Archæus—which he located in the stomach, for the performance of odd jobs not otherwise readily accounted for. It is hardly creditable to this progressive age, that it now requires two "powers" to regulate the affairs of the spinal cord. However, the fact is guaranteed, both by the "experience" and by the "assurance" of its eminent author, and what more can be desired!

Moreover he says in a foot-note,—"I ask that no one be surprised (s'etonne) at the assertion that the normal spinal cord possesses a convulsive power. A number of facts demonstrate the existence of this power in the case of man and also of animals. I will mention one. I have found since 1868, that in cobayes, there is a very small part of the spinal cord, near the bulb, which one can scarcely prick without inducing a complete attack of epilepsy" (p. 13).

It is to be regretted that some of the other "facts" were not mentioned in proof of the "assertion" in question, since this one seems very far from conclusive on the subject, and complete proof is very desirable.

With the greatest respect for Dr. Brown-Sequard's eminent abilities and his untiring industry, I venture to suggest, in lieu of his complicated and imaginary mechanism, the simple explanation, that, in the first case, where the spinal cord is cut across in the dorsal region, the shock and perturbation to the terminal nerves of the cord lessens their restraint over the muscles they supply, and the latter exhibit more or less spasm and convulsion in proportion to their freedom. On the other hand, when only half the cord is severed, the resulting shock, or paralysis, is less severe, and the effect is lessened in proportion; the nerves continuing to retain control over their muscles. The disturbance of the circulation of blood in the lower extremities is also less than when the whole cord is cut, and this also is a factor of some importance.

It would be easy to furnish additional evidence in opposition to the idea of a convulsive power on the part of the spinal cord. I can only introduce here that of Dr. Ringer, who instances "certain poisons like gelsemium and buxus sempervirens, which produce at the same time both weakness of natural co-ordinated reflex action, cord paralysis and tetanus."

He says, "it is impossible that the tetanus should depend on stimulation of the cord, for we have seen that the tetanus was preceded by considerable depression of the cord, and continues until the depression ends in extinction of all cord function;" or as he says again, the tetanus "occurred in a dying cord" (*London Lancet*, Feb. 17, 1887, p. 228. *Braith. Retros.*, July 1887, p. 98).

I must leave the intelligent reader to make an application of this theory to the other examples of alleged inhibition offered by Dr. Brown-Sequard, including going asleep, which the eminent physiologist claims as another illustration of inhibitory action.

I cannot close this paper without a reference to the inhibitory action which the vagi are said to exert upon the heart, the chief evidence in support of which, is the more rapid beating of the heart after section of the vagi. Now if this act were really equivalent to taking the brakes off the heart, it ought to beat with greater force, as well as with increased frequency —mere frequency being usually an indication of cardiac weakness and failure, rather than of increased vigor. Does the heart beat with more force?

Dr. Burdon-Sanderson tells us that in the frog it does not even beat with increased frequency after section of the vagi (*Handbook*, p. 285). In the rabbit, there is no increase of arterial pressure (p. 281), and consequently no evidence of increased force. In the dog, there is some increase of pressure, and a marked increase of frequency, but in this animal "the vagus is united in one trunk with the sympathetic" (*Ib.* p. 315), so that this case must be ruled out, since the effects of section of both the vagus and sympathetic cannot be regarded as equivalent to section of the vagus alone, the effects in this case being of a far-reaching character. So far as this evidence goes, there is therefore no proof of the alleged inhibition.

Another experiment relied on in this connection, is, that when the aorta is compressed, the heart's action is retarded, owing to the resistance offered to the outflow of blood from the heart; and with the pressure on the aorta kept up, the vagi being now divided, the retardation of the heart is considerably less than before. This is interpreted to indicate that the heart is better able to overcome the resistance when the restraint of the vagi is removed.

But it must not be overlooked, that section of the vagi is not by any means a simple matter, the effect of which is confined to the heart. The vagi are the motor and sensory nerves of the lungs, (Gray's *Anat.*, p. 660), and when cut, not merely are the lungs paralyzed, but all the involuntary muscles supplied by these nerves,—those of the glottis, bronchi, esophagus, stomach, etc., pass into a state of contraction, — the glottis being closed, "just as in death" (*Handbook*, p. 318). The whole mechanism of respiration is completely changed (*Ib.*), and besides the blood becoming venous, the circulation through the lungs is obstructed, post mortem examination showing inflammatory changes, and exudation of bloody serum and pus (*Ib.*). Amid all this pathological commotion, ending ere long in dyspnea, asphyxia and death, how very unjustifiable it is to attribute the alteration in the heart's action solely to the removal of an imaginary inhibitory force, when so many other disturbing factors are also present!

All that is necessary in order that the heart may beat faster is that less blood shall reach the left ventricle. All the conditions producing this effect are here present, in the paralyzing of the lungs and the obstructed pulmonary circulation. With less blood reaching the left heart, it has less bulk to contract on, and a lighter load to lift; hence, even when the aorta is still compressed, it is able for a time, to show a lessened retardation, and in the absence of aortic compression, the increased frequency would have free scope, and is thus amply accounted for, altogether independently of inhibition.

Another alleged example of inhibition is the arrest of the heart by a blow in the epigastrium or from too copious draughts of ice-water. The inhibitory hypothesis requires us to believe that the blow, and the ice-water respectively, act as stimulants, exciting first the adjacent sympathetic nerves, then the inhibitory centre in the medulla, which is roused into unusual activity, the inhibitory wave finally reaching the heart through the vagi, and causing its arrest (*Handbook*, p. 285, Dr. Brown-Sequard's Lect. Cent. New. Syst. Amer. Ed. 1860, p. 159). To what a length of absurdity will not an erroneous hypothesis lead its votaries! How much more simple, natural, and truly physiological, to regard the effects of the blow, or of the ice-water, as paralyzing in their effects, and arresting the heart in consequence, through the nervous circle mentioned; thus ignoring the imaginary inhibitory mechanism altogether.

Lindsay, Ontario, Canada.

VALVULAR HEART DISEASE FOLLOWING ACUTE RHEUMATISM.

By John E. Bacon, M. D.

Dennis M., Irish, age twelve, undersized for age.

Family History.—Father and mother both strong, healthy, Irish people, with no history of previous illness of any kind; two sisters and two brothers, all in perfect health.

Personal History.—Patient was never ill until three years ago, when he was attacked by inflammatory rheumatism following a prolonged race with boys of like age over the hills on a cold, rainy day. He returned home exhausted, wet and cold, was attacked that night by the disease, involving both knees and both ankles. Was then confined to bed for two months, under treatment by another physician; recovered and was comparatively well until the following winter, when he was again ill for about the same length of time; recovered again and was about until the next winter when he was again ill for three months. At the end of the third month of this last illness I was called to assume charge of this case.

Examination.—Found the patient in bed, with both knees and ankles and one wrist enveloped in flannel cloths; he complained of pain in all the joints, and of trouble in breathing, with a constant pain in the præcordia. He was emaciated, with an anxious countenance like that of angina pectoris; temperature, 99.5° F.; pulse 120, respiration 40; broad, tremulous tongue. Examination of the joints revealed swelling in both knees and both ankles and in right wrist, with undoubted evidence of thickening of the capsules of the knee-joints, limited motion and great tenderness. Examination of the chest showed marked bulging of the præcordia, widened interspaces, deepened supra-sternal notch, respiration shallow and labored.

The apex beat was apparent in the fifth interspace well to the left, and the area of pulsation was easily two and one-half inches in diameter. Palpation demonstrated a strong, heavy stroke against the chest wall, and each pulsation was accompanied with pain. Percussion: The cardiac dulness was as follows: Beginning at the fourth costal cartilage, descending one inch to the right of the sternum nearly to the xiphoid cartilage across the chest, to the left, on the same level, to the mid-axillary line, thence obliquely to the junction of the fourth rib with its cartilage, making the largest heart, in proportion to body weight, that I have had opportunity to examine. Auscultation: Before the ear was in direct contact with the chest, a harsh murmur could be distinctly heard; with the ear in contact with the chest, a loud, harsh murmur was heard all over the chest, its point of maximum intensity being within the area of the apex beat. It sounded as though both systolic and diastolic, with, perhaps, the louder sound during systole. It was transmitted into both carotids, into the left axilla, and down, along the sternum, to the epigastrium, with nearly equal intensity, and was so loud and harsh that, beyond the certainty of both mitral and aortic regurgitation, the exact lesions could not be determined. The water-hammer pulse was typical.

Examination of the urine revealed nothing pathological; an abundance of chlorides, amorphous urates and uric acid being present. Repeated tests failed to show albumin. The daily amount averaged about 35 ounces.

The patient was extremely sensitive to noise, had a poor and capricious appetite, and slept very little.

The diagnosis was very clear, being, of course, inflammatory rheumatism with severe cardiac complications.

Pathology.—Being of those who regard rheumatism as a disease caused by a disturbed metabolism with consequent accumulation in the blood of uric acid, with perhaps lactic acid also in excess, I believe the condition of the heart in this case to have begun with endocarditis, with deposition of fibrin on the heart valves and consequent formation of verrucose or warty vegetations. Nothing apparently having been done by the previous attendant to assist the elimination of these deleterious products from the blood, or to counteract their poisonous effect, the condition persisted until, perhaps, all the valves were covered with vegetations of organized fibrin; and these, preventing the proper closure of the valves, brought about regurgitation in some, or in all, which, in turn, by the process of compensation, produced dilatation with insufficient hypertrophy, until the orifices of the heart were stretched so that the valves were no longer able to cover them; hence, the universal regurgitation observed in the case, causing a rapid heart and respiration.

Treatment.—Locally, tincture of iodine to the affected joints, followed by jackets of raw cotton-wool. Internally the following:

℞. Salophen,
Phenacetin, ...āā ʒ i.
M. Div. in chart. No. xii.
Sig.: One powder every 4 hours.

also,

℞. Potass. acetas, ...ʒ vi;
Spir. ætheris nit. ....℥ ss;
Aquae ......q. s., ad. ..℥ iv;
Ext. Gelsem. fl., ...gtt. xxxii.
M. Sig.: Teaspoonful every 4 hours, alternating with powders.

Under this treatment the pain and swelling of the joints immediately began to subside; the flow of urine increased, with a rapid disappearance of the uric acid. The patient began to eat, and in about two weeks was up and began to walk. In a month was walking around and very comfortable. During this interval I examined the heart repeatedly, but could detect no change whatever, the pulse remaining at 120 and the respiration at 40. After six weeks, the above treatment was discontinued and he was placed upon the following treatment:

℞. Pil. spartein. sulphas., ..gr. ¼, No. 100.
Sig.: One pill three times a day, two hours after meals.

also,

℞. Potass. iodidi, ...ʒ i;
Syr. Trifolium comp....℥ iv.
M. Sig.: Teaspoonful after each meal.

He was also instructed to eat one lemon each day.

Under above treatment the pulse-rate came down to 100, the respirations to 22, and remained practically stationary for two months, the patient eating well, sleeping well, and being, on the whole, fairly comfortable. The condition of the heart actually improved, as I was able to locate the lesions much more accurately than before, and the murmur was softened in a remarkable degree. There was, undoubtedly, mitral, tricuspid and aortic regurgitation, and probably, though it could not be definitely made out, some interference with the pulmonary valve.

The slowing of the pulse-rate was probably due to action of the sparteine sulphate, and it produced this effect without decreasing the force of the heart or lowering arterial tension, which, in this case, was necessary to life. I also note, that the heart's action became more regular and that the daily amount of urine was increased. I have used this agent in two cases of mitral disease with failing compensation and dropsy with excellent results, and believe it to be one of the most reliable drugs we have for the relief of such conditions.

To the potassium iodide I attribute the softening of the murmur, and firmly believe that a portion of the vegetations were absorbed under its use. Although continued in the above form for nearly three months no derangement of the digestion or symptoms of iodism appeared.

At this writing, eight months from the beginning of my observations in this case, the patient is still comfortable and able to be about, though, of course, the ultimate result will be fatal.

Sumner, Washington.

INHALATIONS OF CREOSOTE IN THE TREATMENT OF TUBERCULOSIS. *

By Charles H. Merz, A.M., M.D.

Warm creosote inhalations have been tried in tubercular affections with variable success. Within the past few years, this method has come into vogue and would seem, at first glance, to be the least objectionable method of administering it. Creosote is acknowledged to be one of the most valuable therapeutic substances that we now have at our command, but I must confess that after a very careful and extensive trial of this method of administration the results have been rather indifferent. Of course in this, as in every other series of trials, there are exceptions; while favorable results have been reported by some, there are objections to its administration in this form that do not fully meet the exceptions.

From no less an authority than Ringer, we learn that: "The inhalation of creosote or carbolic acid, ten or twenty drops in boiling water, is useful in bronchitis, lessening in some cases over-abundant expectoration. The inhalation of even ten drops produces in some persons giddiness and a sense of intoxication. It seems especially useful where the cough is violent and protracted, and out of all proportion to the amount of expectoration. Its effect is often rapid and complete. Creosote in full doses is strongly recommended in phthisis, especially for the non-febrile or only slightly feverish cases."

To Dr. Otto Roth we are indebted for the statement that, "creosote is especially recommended in *pulmonary tuberculosis*, in which affection it may be given for months at a time in large doses, beginning with small doses, min. iiss a day and increasing gradually every four or five days up to min. xv or even min. xxx." There is no question but that creosote and guaiacol are, at the present day, the two most important remedies employed in the treatment of tuberculosis. It is introduced into the system by various means, the commoner one perhaps being that of elastic capsules, while often it is administered through the medium of the respiratory tract or the rectum.

One of the most difficult matters to determine is the purity of the product. Patients are found who will take creosote daily in substantial doses for a long time; and when the same prescription is filled at another drug-store the drug cannot be taken at all.

Helbing, the latest reliable authority on materia medica, in referring (1893) to creosote, says: "According to Guttmann, tubercle bacilli are destroyed by blood which contains ½ per mille of creosote, while even half that proportion arrests their growth. On this statement the intensive creosote treatment of phthisis was based, which consists in commencing with a daily dose of two minims and increasing the amount 1 minim daily, until 15 to 18 minims are being taken *pro die* in the form of capsules... It is interesting to note that quite recent researches indicate that the good effects of the creosote treatment of pulmonary tuberculosis are due neither to the kolyseptic (or development hindering) properties, as some authors believe, but to the fact that it forms compounds, eliminable from the blood in a dissolved state with the toxic albuminous by-products of the activity of the tubercle bacillus. It is to these albuminoids that the fever, night-sweats, and disturbances of appetite, digestion and general well-being must be ascribed, and with their removal or conversion into inert compounds all these symptoms disappear."

---

* Read before the Erie County, Ohio, Medical Society, August 10, 1893.

In the writer's hands, the use of creosote in the majority of cases coming under treatment has been singularly ineffective in arresting the tubercular process. It has been administered in capsule, by enemeta, and by inhalation. True, there have been one or two cases in which rapid improvement has taken place and the bacilli, as determined by microscopical examination, have rapidly disappeared and improvement of all the symptoms has taken place; yet these cases have proven to be the exception. In a large number of cases the sputum has been carefully examined at intervals of a few days without showing any appreciable decrease in the number of bacilli or the improvement of the symptoms. That creosote is an agent of value in the treatment of tuberculosis is not denied; its use has become almost universal; yet I am unable to account for the small percentage of recoveries or improvement in the cases coming under my observation, unless it be due to the fact that the cases were too far advanced to be materially benefited.

I have had occasion to observe and verify the following statements in regard to the use of this agent:

The degree of tolerance of the drug is extremely variable, both as to the time of administration and the individual. We find very frequently patients that seem to tolerate the drug, even in large doses and for long periods, in an admirable manner. Then, again, there are individuals who, after using the drug in the form of inhalation, will suddenly and without an apparent reason turn against it. It is a noticeable fact, also, that while in some cases there is a pronounced improvement in the general symptoms, increase of appetite, gain of flesh, diminution of night-sweats, etc., there is no appreciable improvement in the *local lesions* in the lung, the destructive process going on at a uniform rate. I have found this to be a fact: that in cases in which creosote has been used with benefit for a time and there suddenly comes an intolerance for the drug, the prognosis has been invariably bad, or, I might say, the result has been bad. I am at a loss to know how to account for this fact—for it is a fact beyond doubt—unless it be that the general strength has failed to such a degree that the drug nauseates by its action on the pneumogastric nerve.

Another fact has been observed during my experience with the use of creosote, and that is, if an intolerance to the drug be manifested during the earlier treatments, the prognosis is unfavorable. I am inclined to believe that the administration of creosote may be made to serve as a basis for forming a prognosis—not a diagnosis. Had I not used it in a sufficiently extensive degree, I would not feel prepared to offer these deductions, but I have been using it constantly and in a large number of cases for some fourteen months, and I have in no case been misled in forming a prognosis of my case—after observing the initial effects of creosote.

The use and the value of creosote as a therapeutic agent needs no defence. Since its introduction by Sommerbrodt, its value has been recognized by the profession at large. I am inclined to believe that the cause for disappointment frequently lies with the physician, and that the drug is administered at too late a stage to manifest its most beneficial effects. I do not think, however, that a positive and satisfactory explanation of the action of creosote has been given up to the present date, although the one offered by Helbing seems the most reasonable. It cannot be doubted that some cases of tuberculosis, if taken in the earlier stages, may be cured by creosote; but I do not agree in the general opinion that the later stages can be ameliorated or benefited. Up to the present time I have not given it hypodermatically in any case, fearing the abscess that is apt to follow; but I have given it internally in all stages of tubercular phthisis.

Usually it is administered after the formula of Guttmann :

R.	Creosoti, (pure beechwood)......	gr. xv.
	Tr. gentian....................	f. ℥ i.
	Alcohol. pur....	f. , vii.
	Vini (Tokay)..................	f. ℥ xxii.

M. Sig.: A tablespoonful in water three times a day after eating.

This has proven to be the most palatable form in which I have attempted to administer it. In certain instances I have found it of advantage to substitute some other wine, but this is merely a matter of taste. As to the use of capsules, I can say little except that they are frequently found to vary in strength, and occasionally we find patients that are not able to take any form of a capsule.

While admitting the value of creosote *per se* in treating tuberculosis, I have failed to find the method of administration by inhalation as satisfactory in its result as I had hoped. In some cases I have found the inhalations positively detrimental, rather increasing the intensity of the faucial, pharyngeal and pulmonary symptoms than ameliorating them. In cases of apyretic phthisis, the creosote has proven to be of more benefit than it has in any other form of the disease; in fact, I have noted in one or two instances a decided fall in temperature after a long continued treatment.

Of course, inhalations of creosote must be accompanied by other appropriate treatment. I have had no opportunity to learn either by experiment or observation, just how much of the drug is absorbed by inhalation, but the quantity must necessarily be small. One of the points to be guarded most carefully is the over-exertion in inhalation, and for this reason it is recommended that the inhalations should be strictly controlled by the physician.

It cannot be denied that the local inhalations in certain cases of phthisis are often good. To attain this result the temperature of the inhaled air must be closely watched, and the initial doses must be quite small. One reads frequently in the materia medica, that "an inhalation of 10 drops of creasote in steaming water will be soothing". This, I think, is a common error, as there are few that can endure a solution of such strength. Creosote must be cautiously used, when employed as an inhalation, if unpleasant results are to be avoided.

The fact that the "motor power," in taking inhalations, so to speak, is always derived from the patient, leads me to look upon the use of the inhaler in many cases as a rather expensive process so far as strength and vitality are concerned. Many cases are of such a nature that the use of an inhaler is a physical inability, solely from a lack of strength to properly use it. Another point that must be considered, is the amount of any medicament that can be introduced into the system even after a number of hours of inhaling. I doubt, that if, before and after an inhalation, the amount of creosote were definitely determined, there would be any considerable amount of the drug found to be missing from the solution. Undoubtedly in cases where there is an irritable or inflamed condition of the mucous membrane of the pharynx and larynx, inhalations of hot vapor laden with chloroform or some sedative drug, will prove to be a means of securing comfort and ease; but when one is confronted with the theory that the inhalation of warm *antiseptic* solutions is sufficient to arrest a process of decay or breaking down of lung tissue, or that the mere presence of a vapor more or less heavily laden with an antiseptic, is going to disturb the business habits of the bacillus tuberculosis, then I think that one may be pardoned for confessing to a small degree of skepticism.

Using creosote in the treatment of phthisis, as we all are probably doing every day, admitting in a general way its value as a therapeutic agent in this disease, it yet remains a question of very great doubt to me, far from being definitely settled, whether creosote administered by inhalation possesses any real advantage, or any advantage at all, over the other means of administering it as commonly practised to-day. Certainly the question is worth careful study and experimentation, but so far as my experience has gone, and this has been sufficiently extensive of late to warrant an expression of opinion, I say, so far as my experience teaches, I am inclined to look upon the administration of the drug by this means, or in this manner, with a pardonable lack of faith.

Sandusky, Ohio.

Correspondence.

RHUS TOXICODENDRON—THE CELL-THEORY—COPPER ARSENITE.

To the Editor:

Sir: — Clinical experience abundantly establishes the value of rhus toxicodendron in treatment of *chronic rheumatism*, particulary cases, by some physicians, for want of a better name, and in some neighborhoods, called *rheumatic neuralgia* where there seems a blending of two pathological entities.

You have doubtless employed it in post-orbital pain, an excruciating, boring sensation. Its effects are magical.

Here there come to the physician many cases of *rhus poisoning* (for shrub grows rankly in the wooded districts), a few of which are repulsive and troublesome. I have seen a ten year old girl literally covered from foot to crown with the peculiar rash and sores, unable to tolerate the intense burning and itching.

Good local applications in my hands have been ammonia muriate and ichthyol. The former is comparatively cheap and highly satisfactory in effect, and, therefore, is the one commonly used. In a solution of one or four drachms to one pint of soft water it may be said to be specific.

Ichthyol gives prompt and perfect relief.

Your cell-theory accounts for all, or nearly all, phenomena of drug-action on the economy.

Now-a-days I seldom prescribe anything but cupric arsenite for *vomiting*—it matters not what the cause may be, whether child or adult, whether state is one of pregnancy or not, it goes on its mission from my office, leaving prescriber with a comforting assurance that all will be well and that he will not be confronted with a nocturnal call in the near future. Nothing can replace it in my confidence.

I give $^{1}/_{3000}$ or $^{1}/_{6000}$ grain, and nausea and vomiting cease by magic. What decisive local effect could $^{1}/_{6000}$ grain exercise in one or five minutes, on the stomach — very little I opine — and yet $^{1}/_{6000}$ grain counteracts a most powerful morbid process.

In such cases vomiting is a purely reflex act. Does dissolved chemical in lacteals, venous radicals, or capillaries, by coming in contact with ultimate fibrils of pneumogastric therein arrest morbid action?

As you hint, vaso-motors being bathed with the blood are reached by the drug and influenced in a way peculiar to that drug; or it may be conveyed hence and be brought in relation to the nerve-centres, affecting their nutrition and function; or it may pass more or less directly to muscle or gland cells and then exercise its function. It seems plausible that cactus, gelsemium, digitalis, etc., are rapidly absorbed, and in the blood are brought in relation to vaso-motors everywhere, and through a perfect nerve mechanism by which all vital organs and functions are related, tissue nutrition, tissue growth, and tissue waste are modified or altered, built up or torn down. In other words, by the means described, it is enabled to so influence the great balance-wheels of the economy that abnormal cell-action is made to give place to normal activities.

The last step in the therapeutic journey of a medicine to that of direct cell-contact; here I take it, it may be irritant or soothing, may accelerate or retard cell-function, but if it has been intelligently prescribed, and is therefore appropriate, the problem is solved and health restored.

R. B. McCall, M.D.

Hamersville, Ohio.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. OCTOBER 16th, 1893. No. 4.

NOTICE.

TO CORRESPONDENTS AND EXCHANGES.—The Editor announces that he has removed his offices and residence to No. 1411 Walnut Street, Philadelphia, where all communications relating to the editorial department of THE AMERICAN THERAPIST should be sent.

Editorial.

EDUCATIONAL WORK.

The marked appreciation shown for, and the lively interest taken in, the educational work of THE AMERICAN THERAPIST, must be regarded as a favorable omen, because it bespeaks a desire on the part of physicians to investigate, compare, observe, and decide with deliberation upon questions which promise to introduce new, and in some cases novel, methods of treating disease. The present number furnishes—as has, indeed, nearly every previous number—evidence of the caution and circumspection shown by our contributors when advancing views for the consideration of the profession. Without wishing to make individuous comparison, the contribution of Dr. Porteous may be taken as an example of latter day deliberation. Ten years ago, the successful treatment of a single case of myxedema would have been proclaimed throughout the entire world, but to-day not an intelligent physician in the habitable globe where the English language is spoken or written but can tell how these cases may be treated. The secret of its successful management will probably be found by studying in lines running parallel with the investigations of Prof. Vaughan, published in our last number.

But the question will be asked: *Does the successful treatment of this disease mean anything more to medical science?* The limited number of cases of myxedema is of little import, when we consider the large number of other diseases which are practically incurable, but if the principle involved can be extended, its far-reaching effects will be almost incalculable for good, and we commend the subject to our readers for further consideration.

A word should be added in relation to the contribution of Professor Schulz, who brings forward some interesting facts bearing upon the older methods of treating disease by counter-irritation. His views and his arguments seem to explain the scientific principles involved in the administration of the cold bath in the treatment of typhoid fever. The advocates of the practice on this side of the Atlantic are quite satisfied with the results, that is, they assume that the results should be accepted as a sufficient explanation of the desirability, but since they all alike insist upon the necessity of "rubbing," the observations of Schulz on *revulsion-therapy* throw a bright side-light upon this question, and thus another dark corner is illuminated.

It is to be regretted that the series of contributions by Dr. Poole have come to an end, as they have undoubtedly had the effect of causing serious doubts to arise in the minds of those well advanced in physiological research concerning the basis of modern teaching. As a compensation, however, for this loss, we shall publish in our next issue a thoughtful and suggestive paper by Dr. J.W. McLaughlin, of Austin, Texas, entitled: "*Some Views on the Phil-*

osophy of Drug Action." In addition to this we shall begin the publication of an exceptionally instructive contribution to medical literature, entitled: "*Actions of Drugs upon the Intestines,*" by Prof. W. C. Caldwell, of Chicago. It will be illustrated in order to demonstrate the distinct physiological actions of various drugs.

It should be stated that these remarks are not prompted by any disposition to boast, but for the purpose of showing that the educational work of THE AMERICAN THERAPIST has been, and will continue to be, conducted systematically and persistently, and we hope to increase our friends, our supporters and our collaborators as we proceed.

Special attention should be directed here to the number of abstracts which appear from the meeting of the first Pan-American Medical Congress, because they indicate the demand for further and more practical knowledge bearing upon the administration of drugs.

ABLATION OF THE SPLEEN.

Within recent years it has been conclusively demonstrated that the spleen, the thyroid gland and bone-marrow were all intimately associated with the origin of blood-cells, and since it has been shown that myxedema is directly associated with degeneration of the thyroid, it is not surprising that ablation of the spleen should destroy for the time being the microbicidal powers of the blood. Those of our readers who have closely followed the investigations of Professor Vaughan, published in our last number, will readily understand why this result is produced; they will understand, also, that the so-called natural antiseptic properties of blood-serum is a myth, a delusion and a snare. The fact is, no doubt, that the antiseptic property of the blood is due to the secretion of neuclein or similar substance by the nucleus of the white blood corpuscles, and as a matter of course, when either the spleen, the thyroid, or bone-marrow are affected this property of the blood disappears.

Dr. Montouri, writes in a late number of the *British Medical Journal* that he has arrived at the following conclusions:

1. Removal of the spleen is followed by a manifestation of a gradual diminution of the bactericidal power of the blood. This power generally remains about normal for the first fifteen days, being gradually lost between the fifteenth and the thirtieth day.
2. After a time, varying from two to four months, the bactericidal power gradually returns, and is completely restored in about four months.
3. These effects take place more rapidly in young than in old individuals, and more rapidly in rabbits than in dogs.
4. The germicidal substance is, in Montouri's opinion, of the nature of a ferment.
5. After splenectomy the blood loses not only its germicidal power, but also its power of destroying the corpuscles of other animals introduced by transfusion.
6. The same applies also to the bactericidal powers of the other juices of the body.

THE DIRT PENALTY.

It seems almost incredible that we should know so fully the conditions that favor the development and spread of such diseases as cholera and yellow fever, and yet be unable to control them. In the case of the latter disease, the authorities at Brunswick, Georgia, claim that the increased number of cases was due to secrecv on the part of those attacked, but it is self-evident that the soil suitable for the multiplication of the germs was there already. Still, that was not sufficient to precipitate the disorder upon an entire community; there must be in addition, persons susceptible to the specific poison, and besides, atmospheric conditions must be favorable. And the same is true in regard to cholera. In Hamburg the disease has re-appeared; it has also done much harm throughout Russia and along the shores of the Mediterranean, and even England has not entirely escaped. Taking into consideration all the facts connected with the appearance and persistence of both diseases, it is apparent that we are at all times liable to be called upon to pay the dirt penalty, and in view of this palpable truth, would it not be wisdom on the part of the business community in every large city to look well to the sanitary conditions of their own town. Every man should consider himself a committee of one to ferret out nuisances, and every store, factory or public building should have its smelling committee.

The New York authorities have demonstrated that cholera can be kept out, and also that it can be stamped out, but in the comparatively small town of Brunswick, both the local and government officers have failed utterly to control yellow fever.

*THE PAN-AMERICAN MEDICAL CONGRESS.**

ABSTRACTS FROM THE HAND-BOOK.

A Contribution to the Knowledge of Acute Primitive Entero-Colitis During Low Infancy.

By Joaquin L. Duenas, M. D., Havana, Cuba.

Clinic and demography show that in Havana, morbidity and mortality due to enteritis is as great as in any other city. Thirty-three per cent. of children dead before their second year are the victims of acute diarrhea.

The etiological conditions that provoke them are:

(1) Infected condition, soil, air and water.

(2) Altered state of cow's milk.

The fermentation of milk is dependent on many a different cause:—adulterations, heat, etc.

Clinical forms can be limited to two types, viz., *cholera infantum* and *entero-colitis.*

No relation is to be detected between morbid and etiological specificity; the same infectious agent, such as milk alterations, B. coli-communi, impaludism, etc., can provoke the same clinical type.

Etiological and clinical diagnosis will only be concordant when supported by ample and sufficient information, which are some of the resorts of clinical investigation, others consisting of laboratory researches, and anatomo-pathological considerations.

Infection of the intestine is the cause of entero-colitis of children. The analogies observed in termical evolution, symptoms and results of therapeutics, induce me to claim their identical nature. Comparative mortality observed in the sketches during the years 1888–92 is well adapted to maintain this position.

The principal forms of entero-colitis occurring in Havana are—the common form quoted by the authors, the gastric, the thoracic (severtre) and the cerebral; the remittent typhoidic and choleric varieties are also very frequent. Treatment is based in four capital indications: (1) Delivering the intestinal tract of matters residing in it. (2) Securing its antisepsy and the functional repose of the organ. (3) Reparation of organic waste. (4) Attacking of the symptoms and complications.

Types of Gastro-Intestinal Disease Prevalent in New York.

By Floyd M. Crandall, M. D., New York City.

The gastro-intestinal diseases common to young children are especially prevalent in large cities, where all the conditions exist which are active in their production. In New York over 30,000 children die of diarrheal diseases during each decade. Diarrheal diseases occur during every month of the year, but they do not become seriously prevalent until the middle of June. During the last ten days of June these diseases usually begin to develop in large numbers. They are most prevalent during the first twenty days of July. At that date the number of new cases decidedly diminishes. During the six weeks between July 20th and September 1st the development of new cases is quite uniform, being less than half that of early July. During the latter part of September there is again a decided increase in new cases. These variations are represented by a chart based upon a study of diarrhea during four years. Numerous factors contribute to the results shown by this chart, heat being one of them.

The prevailing type of the disease changes with the season. During June and early July the prevailing type is that of acute dyspeptic diarrhea. The diarrhea at this period is largely of the serous type. In August the prevailing disease is marked by less watery stools, much less frequent in number; and entero-colitis is common. During the latter part of September a prevailing type of disease develops of which but little is seen earlier in the season, the so-called dysenteric diarrhea.

---

* Held in Washington, D. C., September 5th to 8th, 1893.

Study of these variations shows that, although age is an active etiological factor, it has but slight influence upon the type of disease.

Observations are reported upon various symptoms of diarrhea. In a large number of cases disordered digestion in some form preceded the actual attack of diarrhea. In 72 per cent. of the dyspeptic cases, the onset was definite or sudden; and in the dysenteric form the onset was sudden in a much larger proportion. The number of stools per day varied in dyspeptic diarrhea from two or three to twenty or thirty, the common range being from six to fifteen; in entero-colitis the common range was from eight to twelve; and in dysenteric diarrhea, twelve to twenty.

The fact that diarrhea is, accurately speaking, a symptom, not a disease, is demonstrated by the study of certain types. Observations are reported upon other symptoms—number and color of the stools, the occurrence of vomiting, pain and fever. From these studies several types of diarrhea are described, no claim being made, however, that they are sufficiently distinctive to be characterized as classes worthy of a specific name.

TYPHOID FEVER.

By WM. C. DABNEY, M.D.,
Professor of Practice of Medicine, University of Virginia.

This paper is based on a study of fourteen cases of continued fever occurring at the University of Virginia between January 15 and April 1, 1893. The epidemic, or outbreak, presented the following features of interest:

(1) There had been no typhoid fever in or around the University so far as I could learn for several months.

(2) Between the middle of January and the first of April, 1893, there occurred fourteen cases of continued fever among persons living or employed on the University grounds.

(3) The persons who had this continued fever had rooms at widely separated parts of the University grounds, but all took their meals at the same hotel.

(4) The water supply of this hotel was the same as that of the other hotels and of other parts of the University, and the sanitary condition of the building was good.

(5) A part of the milk supply was obtained from cows whose teats had been washed in water contaminated by sewage and *probably* infected with typhoid fever germs. It was in evidence also that at least five of the fourteen persons used milk at every meal.

(6) Of the fourteen cases of continued fever, five presented the typical features of typhoid, seven were typical in character, and of the other two I cannot speak with certainty, as they were not under my care and I could get no satisfactory history of the cases.

THE CAUSE OF YELLOW FEVER.

By DR. J. B. DE LACERDA, Rio de Janeiro, Brazil.

We wish to present to the Congress the conclusions of a book shortly to be published, with the title of *Le Microbe* pathogéne de la fiebre jaune.

After a study of the black vomit, the urine, the blood, the tissues of the kidneys, the liver, the stomach, and the intestines, I am convinced that the pathogenic microbes of yellow fever are not bacteria, but rather a polymorphous fungus. This fungus cultivated upon a nutritive medium rich in nitrogenous matter and the hydrocarbons, if supplied with air sufficiently and kept at a temperature of 33° to 35° C., grows an abundant mycelium, and round or elliptique gonidia of a golden color.

Cultivated in a saccharine medium the fungus assumes the torula form, showing the same color. In this shape it acts as a ferment upon the sugar. It is under this form that we have found the fungus in the mucous membrane of the stomach, in the vomited matters, in the urine, in the kidneys and the liver. In the latter organ the fungus often takes the form of hyaline cells with a double contour. It is very rarely found in the blood. The mycelial form can be grown, upon the proper media, from the torula.

After many fruitless attempts we have succeeded in producing some of the symptoms of yellow fever, and the lesions of liver and kidney, in guinea-pigs. These results have been obtained by injecting into the stomach, previously made acid by tartaric or lactic acid, the spores of the fungus. Two or three days later the temperature would rise two degrees, and death would follow in five or six days.

One of the animals presented suppression of urine, and the bladder was found empty after death. Microscopical research proved the presence in the kidney, liver, and stomach of these animals, of the torula fungus, with hyaline cells of double contour.

We are convinced to-day that the infection in yellow fever takes place in the stomach. The poison or toxine is elaborated there, and it attacks and corrodes the mucous membrane, the walls of the capillaries, and the blood.

The anuria is due to obstruction of the venal tubules by masses of fungi, mixed with solid albumin and epithelial débris.

We propose as a basis of treatment the flushing and disinfection of the stomach. A few cases with encouraging results are reported. We have fonnd that the oil of eucalyptus can be used with advantage as a disinfectant in the stomach, and that the perchloride of iron acts as a germicide upon the torula form of the fungus.

THE PHYSIOLOGICAL BASIS OF THERAPEUTIC ACTION. AN EXPERIMENTAL INQUIRY.

By THOMAS J. MAYS, M. D., Philadelphia, Pa.

Every phenomenon in natnre becomes intelligible only when considered in the light of force. Any scientific system of therapeutics must, therefore, be built on a broader basis than that of the mere drug-action on the animal economy. The fireman looks upon the coal with which he feeds his engine as the ultimate source of heat, while the philosopher regards the same material as a store-house of force which has been gathered by the sun, and is but a part of the force which pervades the universe. Heat affects the body differently in accordance with the quantity which is applied. In small quantity it enhances, and in large quantity it suppresses organic action, and in excessive quantity it destroys tissue. A disconnected view of the effects would seem to show three different properties in heat, while really these three different phenomena are varying effects of one property or one force applied in varying quantities.

Experiment shows that many of our therapeutic agents have a similar action in small and large doses—in the former they exalt, and in the latter they depress vital action. Further experimentation shows that small doses are directly antagonistic to large doses, *i. e.*, small doses will overcome the depressant action of large doses. If, instead of large drug doses, we substitute the action of morbid forces, we have a picture before us as to the manner in which drugs combat disease, viz., by interference.

To comprehend this principle of interference we must realize that all the textures of the animal body are in a state of continual molecular motion, and that so long as the molecular motion of each texture harmonizes with that of every other, health is the resultant. Disease arises when a perturbation occurs among these. This molecular motion is maintained first, by substances, like food, which undergoes chemical change in the body; and, second, by force, like heat or friction, which act aggressively. Drug-action falls under the latter classification. The idea that our drugs are like forces also explains their elective affinity. The fundamental principles of drug-action, therefore, resolve themselves into (1) stimulant effects of small doses; (2) depressant effects of large doses, and (3) elective affinity. From this it follows that we have stimulants and depressants of every special organ and function; as of the general nervous system, and of special parts of the same, of the heart, lungs, intestines, liver, kidneys, skin, etc., which demonstrates that the old grouping of the action of drugs into stimulants, tonics, narcotics, expectorants, emeties, cathartics, cholagogues, diuretics, diaphoretics, etc., is the only scientific and natural classification.

A PLEA FOR PHYSIOLOGICAL REMEDIES.

By SIMON BARUCH, M.D., New York City.

Physiological remedies may be defined as those agents which contribute to the maintenance of health. It is proposed to show the value of methodical applications, and their superiority to medicinal agents. Antagonism to the latter is not intended. The present status of therapeutics is unsatisfactory; we have only one positive medicinal curative agent—quinine.

Medicinal agents are symptomatic; they often are injurious, because they hide the real essence of disease and give us a false sense of security. *Nil nocere* should be our aim.

The chief direction of therapeutic effort is in the following of the natural tendencies of disease. In acute disease, rest is as plainly the chief factor of cure as it is in the more patent traumatic conditions. In chronic conditions a judicious alternation of rest and exercise is more valuable.

Typhoid fever may be offered as an illustration of the effect of medicinal as contrasted with physiological remedies. It is characterized by depreciation of nerve-centres and consequent enfeeblement of all organs dependent upon the latter. The modern physician tries to conserve vital forces; the expectant plan succeeded the spoiliative. High temperature, brought permanently forward by Liebermeister, as the chief lethal agent, is proven secondary, since we have positive antithermics. It is now proven that not to his (medicinal) quinine but to his (physiological) baths was due his success. The coal-tar antipyretics must go just as veratrum went, and as internal antiseptics will go. Absolute reduction of pulse and temperature by veratrum and antipyrine, have not only failed, but are proven dangerous.

We must depend in acute depressing diseases entirely on the *vis medicatrix*, which is aided by the physiological remedies if crippled by medicinal remedies. While air, rest and diet are well applied, the various methods of bathing are still a *terra incognita* to many who either satisfy themselves with some kind of sponging or adopt the other extreme of using it severely and injudiciously.

The Brand method has proved the most successful treatment; hence, only the closest approximations to it will produce similar results. The *rationale* of cold bathing is simple; it is a stimulus conveyed to the nerve-centres from the cutaneous sensory nerve-endings, and reflected upon all the vital organs, and it is followed by moderate reduction of temperature. All the manifestations of disease are favorably influenced, because its aim is to imitate and approach the normal standard.

This illustration may be applied to other acute diseases, to show that while medicinal remedies, though agreeable, tend to cripple the vital forces, physiological remedies, though unpleasant, tend to sustain them.

This difference may be illustrated in chronic diseases. In the latter we are not forced, as in the acute, to remove the patient from the etiological factors; hence, medicinal agents are more depended on than in the acute. Chlorosis may be cited as an example, because curable. Removal from unfavorable environments, a judicious diet, exercise, rest, fresh air and certain baths accomplish quickly what prolonged administrations of iron fail to do. Other examples may be brought forward to demonstrate that physiological remedies, though much neglected, are our most powerful weapons; they should be studied and applied with the same care which is devoted to medicines. Hasty judgment must be avoided, so that a firm basis for a sound therapeutic structure may be built.

With this view attention requires to be called to water, *as perhaps the most active* "physiological remedy." Its use is now taught in many of our schools in acute diseases, but its great value in many chronic diseases is still unappreciated in America. This is not the case in Europe; for in Italy the talented Semmola; in Germany, Ziemessen and Erb and Nothnagel; in France, Dryrodin, Braumcity and Charcot, have given a powerful impetus to hydro-therapy by their own successes. In this country Draper and Peterson are teaching the methodical use of baths in chronic diseases. In the Montefiore Home for Chronic Invalids, of New York, hydro-therapy has demonstrated its value in intractable chronic diseases; we need no longer depend upon the statements of empirics on this subject.

Water fulfills every demand required of a remedy. Its action is explicable on rational principles; its effect may be accurately modified to suit individual conditions and its clinical results are undeniable. If used in conjunction with other physiological remedies, its pôwers for good are readily ascertained.

I plead for a more thorough study and application of water as a remedy in acute and chronic diseases, because it is the least understood of all physiological remedies.

Naphthol-Aristol is an iodine derivative of beta-naphthol, prepared by a process similar to that yielding aristol. It is described as "containing two iodine atoms in the molecule, one of which must necessarily be attached direct to a carbon atom in a stable position." If the presumption that this product is therapeutically identical with aristol proves true, we will have in this substance a superior substitute for aristol, because it is more stable, has fewer incompatibles, and the excellent co-operative effect of beta-naphthol will enhance its remedial value.

The Philosophy of Therapeutics.

By L. D. Anderson, M.D., Norfolk, Va.

The philosophical and scientific application of remedial agencies to the relief of suffering humanity involves a comprehensive view of the mental and physical constitution of the patient, as well as an accurate acquaintance with the vital functions, their relationship to each other, and the indication of their aberration from a normal, healthy condition. On this foundation must rest, and from it must spring, every indication for the use of remedial agents, whether for the restoration of impaired functions or the removal of organic derangement.

IMPORTANCE AND DIFFICULTIES.

First.—As health is an expression of the harmony and unity of the vital functions, so disease is but a suspension or aberration of those functions. The phases of functional derangement are often so obscure as to render it difficult to decide whether the trouble is local or reflex, specific or sympathetic. It is, also, often difficult to decide whether the remedial effect of an agent has been exerted upon the organ ostensibly affected, or reflexly through some other organ or organs.

Second.—Another difficuly which confronts the therapeutist is the want of reliability in the agents which are prepared for his use. Some agents are only valuable when prepared from the green herb, and yet they are prepared from the dry; some only in tincture or syrup, and yet they are given in powder.

Third.—Another difficulty arises from the want of unity and harmony among therapeutists as to the true physiological action of certain widely used medicinal agents. This is illustrated in the vegetable kingdom by sanguinaria canadensis, and in the mineral kingdom by calomel. The contrariety of opinion in regard to the physiological action of these important medicinal agents, demonstrates the difficulties which environ the student of medicine in reaching a reliable conclusion in regard to the factors which constitute his *armamentarium.*

PHILOSOPHY.

One fact has been clearly demonstrated in the progress of therapeutics which constitutes a reliable basis for substantial progress, viz., certain agents exert a specific action on certain organs and tissues. This action must be clearly defined before any practical result can follow its application. The pathological condition of the organ to be acted on must be clearly defined in order to prevent exciting therein a more formidable trouble than already exists. Thus, cathartics and diuretics are of great range and physiological divergence; some harsh, others mild—the remedy must therefore be used to accomplish a certain physiological effect, only as the pathological state will justify. Pathology constitutes, then, the basis principle of all reliable therapeutics.

To treat a disease from the standpoint of its supposed cause is to substitute empiricism for philosophy, and hypothetical factors for clearly-defined scientific indications. It matters not from what cause a fever springs, we know that so soon as all the functions are restored to a normal condition, the fever disappears.

The boldness with which men proclaim themselves allopaths, homeopaths, hydropaths, etc., is a demonstration of the brazen effrontery with which they can boast of their ignorance and stupidity. In either case the nature and extent of disease is measured by the ostensible symptoms which may spring from as many different causes and pathological conditions.

Any medicinal agent may produce various effects by increasing or diminishing the dose. And yet a careful analysis will demonstrate that the legitimate physiological action has been preserved, and the varying effects are the result of well-defined physiological laws. The legitimate and proper sanitive effect, of any remedy, is that in which its physiological action on an organ is attained with the least disturbance of the functions of other organs.

The assumption, declaration or *ipse dixit* of no one in the medical profession is entitled to be esteemed as authoritative, no matter how high the position or world-wide the reputation of the author, which is not sustained by well-established physiological results of remedial agents in well-defined pathological conditions. The indiscriminate use in fevers, of so-called antipyretics, especially of the coal-oil family, is a clear demonstration of this. The first impression of these agents is to allay pain when it exits, or to produce a state of repose and quietude. Fever heat springs from the evolution of acrid, exciting and ptomainic products of retained secretions, or the products of retrogressive metabolism, under the action of chemical laws; vital laws having ceased to operate.

So long as these chemical changes are progressing, the temperature rises in proportion to the aberration of function, and the violence of the chemical changes. The indications are to restore the secretions, eliminate the vitiated accumulations, re-establish the vital laws, and restore the lost balance. Should antipyretics be given in this state, the sensibility of the nervous centres, both animal and organic, is obtunded, and the tissues no longer responding to the irritating and exciting products of chemical forces, sink into a state of comparative repose, and all the heat-producing agencies are, for the time, kept in abeyance. As, however, no chemical changes are wrought within, no vital forces are awakened, and no secretions are aroused, whereby vitiated matters are eliminated, so soon as the analgesic effect of the antipyretic is expended, the febrile reaction becomes as high or higher than before, rendering the last state worse than the first.

As disease is the result of suspended or perverted functions, to re-establish and restore their normal operations is the province of the therapeutist. To do this rationally and scientifically is to fulfil the demands of therapeutical philosophy.

FORMS OF MALARIA AND THEIR CHARACTERISTIC FEATURES.

By Dr. FRANCISCO A. RISQUEZ,
Professor of Medicine in the University of
Caracas, and Physician to the Military
Hospital in the Federal District,
Venezuela.

The malarial diseases in Venezuela may be classified as follows:

I. Intermittent forms, generally quotidian, occasionally tertian.

II. Continued forms, including the varieties: (*a*) bilious, (*b*) ictero-hematuric.

III. Pernicious forms, including the varieties: (*a*) pernicious proper, (*b*) complicated.

IV. Larved forms, including the varieties: (*a*) periodic, (*b*) continued.

The forms of the first group are easily recognized by the features of the paroxysm and by the periodic element. When the access is prolonged, the diagnosis may be difficult.

The forms of the second group are distinguished by the gastro-hepatic symptoms and the indications of the urine. They may be confounded with others, especially the yellow fever, and the distinction becomes often a matter of life and death.

The forms of the third group are recognized by the pre-existence of malarial paroxysms. It may become almost impossible, however, to distinguish between cholera, pneumonia or tetanus and cases of choleriform, dysenteric, tetanic, etc., pernicious fevers.

The forms of the fourth group present still greater difficulties, especially in the continued varieties. They may assume all the appearances of typhoid fever, of cholera, of dysentery, of paralysis, of hemorrhage. The malarial cachexia may simulate tuberculosis, hepatic abscess, etc.

An early diagnosis is indispensable in these cases, because they require the fearless administration of quinine; and this drug may be contra-indicated in the non-paludal diseases.

There is but one unquestionable method of diagnosis: *The microscopic examination of the blood.*

All malarial manifestations are accompanied with melanemia; melanemia presents itself exclusively in malaria, the sign is, therefore, pathognomonic.

A drop of malarial blood, under the microscope, shows the masses of black pigment in the plasma. The manipulation requires no special technique; it is simpler than the examination of the urine. It does not require, as the parasite of Laveran does, an investigation by an expert with high powers. Our method requires only a few slides and covers, and a drop of blood obtained from the finger, previously washed. The preparation is taken to the laboratory and there examined. The strong mineral acids may be used as reagents.

A search after pigment should be made in all suspected cases. The number and size of the pigment masses is proportional with the degree of malarial poisoning. If they are found at all, quinine should be given.

I have found pigment in all forms of malaria. I have found it also in other diseases, but only as an evidence of malarial complication.

Melanemia is always an indication for the administration of quinine. The life of the patient depends often in these cases upon a prompt diagnosis.

THE RACE FACTOR IN DISEASE.

By J. WELLINGTON BYERS, M.D., Charlotte, N. C.

Investigation in regard to the nature and influence of the contributory or predisposing conditions of disease demonstrate the fact that race, with its concomitants and peculiarities of tissue and structure, possesses and exercises an important modifying effect upon both the advent and type of morbid phenomena.

A gross comparison of the physiological characteristics of the white, yellow and black races, suggests a higher and lower form of organization, though variations in skin, hair, size and shape of skull and face do not afford an explanation of these diversities of disease, and we must pass beyond these to still finer and more subtle peculiarities of tissues or cells as the ultimate causes. Recent developments in relation to the questions of immunity demonstrate that the vulnerable state is our partaking largely of cell incompetence, and exemption from infectious agencies depends upon cell actions and products. Such being true we must conclude that the factor of race carries with it certain inherent peculiarities of cell powers which control and modify disease processes. In saying this we must not be understood as implying that these conditions are themselves incapable of modification, for we know that climate, class, occupation, habitation and mode of life will each and all cause a fluctuation in these inherent conditions; still these qualities which exist by virtue of race are always more or less evident, and no amount of perturbing influences will completely and entirely suppress them. Hence it is the Anglo-Saxon people show unusual tendency to scrofula and consumption and to diseases allied to these in character; the Negro is exempt largely from malaria, scarlet fever and yellow fever; and the Semitic people are prone to cancer and melancholia, though exempt from contagious disease to a degree warranting the idea that they possess a charmed life.

Current Literature.

THE TREATMENT OF SCABIES.

The treatment of scabies is well known. It is as simple as it is efficacious, and every case thoroughly and quickly cured frees the community of a moving and active contagion-carrier. In the average case of the dispensary class I have usually prescribed a compound ointment, consisting of an ounce of sublimed sulphur, an ounce of Peruvian balsam, thirty to sixty grains of β-naphthol, and sufficient benzoated lard or petroleum ointment to make four ounces. The patient is directed to take a soap and hot water bath. Ordinarily any good toilet soap will answer, but in those of sluggish, thick skin, or of filthy habit, a good sulphur soap or sapo viridis is preferable. After the bath the ointment is to be energetically rubbed in over the whole surface from the chin down, special attention being given to the parts most affected. The back should not be neglected, the application to this part being preferably made by another person.

Clean linen is put on, and clean bed-linen used; the soiled linen is to be boiled. At the end of ten or twelve hours another application of the ointment is made, and so on for six applications. During this time the same linen is worn. Some hours —about half a day—after the last application, another bath is taken and a complete change of linen made. The linen which had been worn, as in fact all the underwear and bed-linen before being used again, should be thoroughly boiled. By boiling, all stray parasites and their ova are destroyed. During the treatment it is advisable to have a dusting-powder of sulphur sprinkled in the bed, in the bureau-drawer, and in other suspicious places. All outer clothing should be subjected to high temperature, if possible, or thoroughly beaten and hung out in the air and sun. Other members of the family should undergo inspection, and those affected treated in the same way, and those doubtful advised to make two or three thorough applications. It is only in this manner that the disease is cured and its recurrence prevented. In young children and infants the β-naphthol is omitted and the quantity of sulphur reduced to one-half. In these younger cases, particularly infants, the disease often invades both face and scalp, also especially the lower part of the face, and this fact should not be forgotten in the treatment. In private practice I have commonly prescribed the same ointment, but with the β-naphthol omitted. In some cases, also, an ointment made up of equal parts of styrax and lard; two to four applications will usually suffice in these patients.

To control the cutaneous irritation which is not infrequently set up by the scabies or by the sulphur applications, and which sometimes persists for several days or longer after active treatment has been discontinued, it is well to advise the application, two or three times daily, of a saturated solution of boric acid, containing one to three drams of carbolic acid, two drams of glycerin, and four drams of alcohol to the pint. Should the treatment have been inefficiently or carelessly carried out, as not infrequently happens in dispensary practice, evidences of an active return of the disease will soon appear, and a repetition of the plan described above, somewhat abbreviated, will be found necessary.

HENRY W. STELWAGON, M.D.

The Medical News, Sept. 23, 1893.

BETA-NAPHTHOL AS AN INTESTINAL DISINFECTANT.

Naphthol has been recommended by Bouchard as a slightly toxic, but efficacious intestinal disinfectant, and his recommendation has been supplemented in another direction by the experiments of Reverdin, who subjected this substance to a series of trials as a surgical antiseptic, and his statements are quite encouraging. He obtained complete healing by first intention in almost each case treated. In surgical practice naphthol is exhibited either in powder, or in ten to fifteen per cent. wadding, which is prepared by sterilizing cotton at 130° F., and then impregnating it with an etheral solution of beta-naphthol. It has also been used in the form of beta-naphthol water for the treatment of ozena. The method for preparing it is as follows: 125 parts by weight of naphthol; 88 parts of alcohol; a dessertspoonful of this solution is placed in a quart of water. It is said that the disagreeable sensation caused by the application of this mixture ceases to recur after a few applications.

Book Notices.

REACTIONS: A SELECTION OF ORGANIC CHEMICAL PREPARATIONS IMPORTANT TO PHARMACY IN REGARD TO THEIR BEHAVIOR TO COMMONLY USED REAGENTS. By F. A. FLUCKIGER, Ph. D., M. D. Translated, revised, and enlarged by J. B. NAGELVOORT. Authorized English edition. Cloth, 8 vo., pp. 154. Detroit, Michigan: GEORGE S. DAVIS, 1893. (Price, $2.00.)

The work embraces an account of more than one hundred and fifty laboratory products—many of them in general use—together with their substitutes and methods of testing by the ordinary or usual reagents. This information is complemental to that found in the text-books and must prove valuable to the physician by enabling him to fix in his mind the therapeutic properties. It will, however, be found indispensible to the pharmacist interested in supplying the demand for reliable pharmaceutical products.

The book is well printed on toned paper, handsomely bound, and has wide margins for convenience in making notes, and, taken altogether, is most desirable. The work of the translator is excellent.

OUTLINES OF PRACTICAL HYGIENE: ADAPTED TO AMERICAN CONDITIONS. By C. GILMAN CURRIER, M. D., visiting physician to the New York City Hospitals, etc. Cloth, small 8 vo., pp. 468. New York: E. B. TREAT, 1893. (Price, $2.75.)

The dissemination of practical information upon the subject of hygiene is a desideratum, and by means of well-chosen headings, together with intelligible language in presenting facts, and suitable illustrations, Dr. Currier has placed the medical profession and the public under lasting obligations. The "outlines" embrace substantially the whole field of sanitation, as will be seen from the following chapter-headings, selected at random: Clothing, bathing, personal hygiene, schools, occupation, ventilation, diet, foods, water and water-supplies, sewers, drainage, plumbing, infectious diseases, disinfection, etc. Above all, however, the book is written in an entertaining manner, and, being supplied with a copious index, consultation is facilitated. It is especially adapted to American conditions and should have a wide circulation.

The Pharmacopeia of the United States of America. Seventh decennial revision (1890). By authority of the National Convention for Revising the Pharmacopeia, held at Washington, D. C., 1890. Official from January 1, 1894. Published by the Committee of Revision. Cloth, 8 vo., pp. 602. Philadelphia: Printers and binders: J. B. Lippincott Co. Agents: P. Blakiston, Son & Co. (Price, $2.50.)

In acknowledging the receipt of the new pharmacopeia which is to be the authority for the next ten years, we shall not undertake a critical review, but content ourselves with glancing at some of its prominent features, considered from the standpoint of the physician. In the first place, the Committee of Revision was composed principally of pharmacists—at least the active workers were pharmacists—and as a consequence the general appearance of the work shows that it is more especially adapted to their special wants. In this respect, however, it is head and shoulders above any former edition, and will require careful study on the part of the physician. The introduction of the metric system of weights and measures will demand some study in order that it may be properly comprehended, if mistakes are to be avoided.

It is to be regretted that the Committee did not see its way clear to extend the list of assayed preparations, although it is stated that there is a fair prospect that a further extensive study of the problem will render it possible to increase the number of assayed preparations at the next revision. A point should be made that all patented and semi-proprietary preparations, many of them extensively used, have been wholly excluded. This, of course, opens the way for a valuable contribution to medical literature in the shape of an extra-pharmacopeia.

The proposition to make tinctures of an uniform strength of ten per cent. was very properly abandoned. In case anything of this nature finds favor with the profession and the pharmacist, we suggest that the strength be so determined that the dose will be from one to five or ten drops. This plan, it seems, would be less likely to lead to confusion, and doubtless would prevent many accidents which now occur too frequently in the family circle.

Of the 994 articles in the former edition, ninety have been discontinued, and eighty-eight new ones added, so that the whole number is decreased but two. The word "officinal" has been displaced, and the word "official" introduced, from the fact that the Government has also adopted the book as a guide.

The work everywhere gives evidence of great care and judgment, but our unfavorable comments will be deferred for the present. It is well printed and bound, far superior to the last edition, and will be found a valuable auxiliary to the practitioner.

Text-Book of Nervous Diseases. By Chas. L. Dana, A. M., M.D., Prof. of Nervous and Mental Diseases, New York Post-Graduate Medical School, etc. Cloth, 8 vo., pp. 525. Wm. Wood & Co., New York, 1893. (Price, $3.25.)

Prof. Dana has written a good book. Even the preface gives a list of the more common as opposed to the rare nervous diseases, which ought to be of use to the student. The arrangement of the body of the work is to be commended. The essential parts of the anatomy are well worked out, and the pathological changes are very fully described.

Methods of examination and elicitation of symptoms are concise and specific, and diagnosis receives full attention.

The treatment is brought up to that standard which may be considered the best modern American therapeutics.

A notable feature of the work is its abundance of illustrations, which are largely original, and cannot fail to be of great value to the student.

Taken all in all, it is doubtful whether a book on this subject has yet been written on this side of the Atlantic, which is a safer guide to the student, and a more reliable manual for the practitioner.

The print is rather fine, and some of the markings on the illustrations require somewhat sharper eyes than some of us have, but still in the main it is easily readable, and if these defects had been overcome, we would have had the volume inconveniently large. S. W.

Handbook of Insanity. By Dr. Theodore Kirchhoff, Physician to the Schleswig Insane Asylum, and Private Docent at the University of Kiel. Cloth, 8 vo., pp. 367. Wm. Wood & Co., New York, 1893. (Price, $2.75.)

The general practitioner is constantly brought into relations with the insane, but seldom is he able to do much more than to decide in a coarse way the question of mental derangement. The true relations to physical disorders, and the varieties of insanity are not usually very distinctly comprehended. This is largely due to the fact that the medical colleges give comparatively little attention to this subject, and that books which are capable of interesting any but the actual alienist are rather rare. Such a book we have before us.

"Mental diseases are not merely diseases of the brain, but diseases of the person." This sentence, on page 19, is the key-note to the volume, and indicates that the physician dare not be ignorant on this matter, if he makes pretension to a broad knowledge of medicine. The book contains less than 400 pages of rather large print and is, therefore, not too large for even the busy practitioner to attempt. But even within this small compass, it deals broadly with the subject, presenting the anatomical relations, careful classification of causes and varieties, the history of psychiatry, with diagnosis, prognosis, and treatment in a general part, and the individual forms in a special part. Neither student nor general practitioner will go wrong in buying and reading it. S. W.

Operation Blank. Prepared by W. W. Keen, M. D., Professor of the Principles of Surgery, Jefferson Medical College, Philadelphia. Second edition. W. B. Saunders, Philadelphia. (Price, 50 blanks, 50 cents.)

This set of blanks is a time-saving device, and is of even greater service in preventing the omission by the nurse or surgeon of certain details in the preparation of the patient, the room for operation, and the paraphernalia of the operation. It is because the blank meets a real need on the part of the surgeon, that a second edition has been called for.

ANNOUNCEMENTS.

A New Illustrated Medical Dictionary.

Dr. George M. Gould, well-known as the editor of two small medical dictionaries, has now about ready an unabridged, exhaustive work of the same class, upon which he and a corps of able assistants have been uninterruptedly engaged for several years.

The feature that will attract immediate attention is the large number of fine illustrations that have been included, many of which—as, for instance, the series of over fifty of the bacteria—have been drawn and engraved especially for the work. Every scientific-minded physician will also be glad to have defined several thousand commonly used terms in biology, chemistry, etc.

The chief point, however, upon which the editor relies for the success of his book, is the unique epitomization of old and new knowledge. It contains a far larger number of words than any other one-volume medical lexicon. It is a new book, not a revision of the older volume. The pronunciation, etymology, definition, illustration, and logical groupings of each word are given. There has never been such a gathering of new words from the living literature of the day. It is especially rich in tabular matter, a method of presentation that focuses, as it were, a whole subject so as to be understood at a glance.

Miscellany.

OCUMILLO FOR SNAKE-POISON. — Poisonous snakes are so numerous in Venezuela that snake bite is almost as common there as in India. But there are fewer fatalities, for the natives have discovered that a plant known as the ocumillo, when powdered and applied to the wound, results in a cure in almost every case.

RETINOL, a product of pine resin by destructive distillation, and occurring in thick brownish liquid form, is a good antiseptic for local application in many skin diseases; it forms a flexible coating, is non-irritating, will not spoil, and is readily removed from the skin. A chief advantage is that it is a solvent of many drugs, such as balsams, camphor, creosote, cocaine, naphthol, etc., making it a serviceable vehicle for dermal preparations.

THE EDISON CURRENT FOR CAUTERY PURPOSES. —Dr. Edward J. Bermingham, surgeon to the New York Throat and Nose Infirmary, describes a very ingenious apparatus which he has devised for controlling the Edison current so that it can be used direct for galvano cautery operations. The apparatus consists of a *rheostat*, made of coils of iron wire and a handle. The peculiarity of the handle consists of its having solid conductors, and the circuit is therefore always closed. It is under the control of the operator's thumb at all times during the operation, and the current can be cut off from, or allowed to pass to, the knife instantaneously and without producing an arc. The apparatus is simple and inexpensive, and, from the detailed description given, any electrician can construct it. Dr. Bermingham has been using it for two years and a half for all his cautery operations.—*N. Y. Medical Journal.*

STERILIZED MILK. —Two Holland inventors have devised a method for sterilizing milk by the aid of the electric current. There have been brought forward recently many proposals to sterilize water in this way, but milk has proved a much more difficult fluid because of the large amount of pabulum for micro-organisms which it contains. The milk to be sterilized is submitted to the action of a strong alternating current, which is applied to the milk in the ordinary dairy utensils. The process may, however, be worked continuously by passing the milk at a suitable rate through a narrow trough, fitted with a series of metallic plates connected with the poles of the source of electricity. It is claimed that by this method all microbes that may be present in the milk, whether derived from the air, the cans, or diseased cows, are destroyed, and that the risk of transmitting infectious maladies through this medium is obviated.

A NEW CURE FOR CHOLERA.—Through accident a new remedy has been discovered in France, which, if its efficacy is still further established, will considerably advance the clinical treatment of the Asiatic plague. Prof. Roux, of the Pasteur Institute, has demonstrated that the comma bacillus dies in the broth made of the sprout which grows out of the barley grain, as it is changed into malt. Lauth, a brewer of Carcasonne, has experimented with tea and injections made of these sprouts. The two first patients were women in an advanced stage of the disease. Vomiting ceased almost immediately after the application of the remedy, and they were much relieved and soon recovered entirely. In a few days Lauth distributed 60,000 packages of these malt sprouts, and since that time the epidemic has abated so that only one death a day occurred, where before that time nine deaths were registered every day.

AUTO-INTOXICATION.—A wide and wholly new field of exploration has recently been opened in what is called auto-intoxication. It has been found that food taken into the stomach and passing into the intestines may there undergo certain changes, due to germs of fermentation or putrefaction, resulting in the formation of poisonous substances which find their way through the intestinal walls into the blood, and thus poison the whole system, giving rise to the most varied symptoms, especially upon the brain and nervous system. It is now certain that many forms of insanity, headache, epilepsy, hysteria, and other nervous disorders, are the results of the peculiar self-poisoning or auto-intoxication. I have been treating many such cases of late with intestinal antiseptics, regulation of diet, and careful attention to the state of the alimentary canal, and with surprising results. In some of my cases of epilepsy I have been enabled by this means alone to reduce the number of attacks per month to less than one-third of the number the patients had had before. In many cases of insanity, headache, neurasthenia, and hysteria, the effects of this new treatment have been very remarkable.—From Dr. Peterson's address before the American Social Science Association.

PETROLEUM FOR DIPHTHERIA.—In the village of Neuville-Champ-d'Oisel, about nine miles from Rouen, a malignant type of diphtheria broke out last year. The country doctor, M. Frederic Flahaut, treated the cases in the usual way, but the deaths were numerous. Remembering, as he says, that the English use petroleum as an antispasmodic and an antiseptic, he determined to try it as an experiment. His first trial was in the case of a little girl 7 years old. He had already given her up and proposed to the parents to make the experiment, which consisted in swabbing the throat with common petroleum. He had little hope of the success of his new method, but to his astonishment he noticed an improvement after the first application. He continued the treatment and the child recovered. Then he tried it successfully with his other patients.

This year he had 40 cases of diphtheria to treat, and he was successful in every one. In order to be perfectly sure that the cases in question were genuine ones of malignant diphtheria he had the expectorated matter submitted to the analysis of Professor François Hue, of the Rouen College of Medicine, and the professor reported that he had clearly discovered the presence in it of numerous bacilli of diphtheria. Moreover, his diagnosis was confirmed by Drs. Deshayes, Lerefait, and Ballay, of Rouen, the last named being the physician in chief of the hospital of that city.

The treatment presents little difficulty or danger. The swabbing is done every hour or every two hours according to the thickness of the membranes, which become, as it were, diluted under the action of the petroleum. The brush, after being dipped in the petroleum, should be shaken to prevent any drops falling into the respiratory channels. The patients experience relief from the very first application. The disagreeable taste of the petroleum remains for a few moments only.—*Normandie Medicale.*

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,
WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, NOVEMBER 15th, 1893. No. 5.

Original Articles.

ACTIONS OF DRUGS ON THE INTESTINES.

By W. C. Caldwell, M. D.,
Professor of Materia Medica, and Director Pharmacological Laboratory, College of Physicians and Surgeons, Chicago.

The function of the small intestine is to digest and absorb the food entering it from the stomach, and then convey the remaining material into the large intestine. The function of the large intestine is, not like the small, to furnish digestive juice, but to absorb a part of the liquid entering it from the small intestine and then to carry the fecal mass onward to be expelled at intervals by the rectum. In this place I shall say nothing of the action of drugs on the digestive mechanism of the intestines, but confine myself entirely to the action of drugs on the evacuant mechanism. I will consider first, those drugs which increase intestinal evacuation, that is, cathartics, and afterwards, those drugs which diminish intestinal evacuation, such as astringents, etc.

THE ACTIONS OF CATHARTICS.

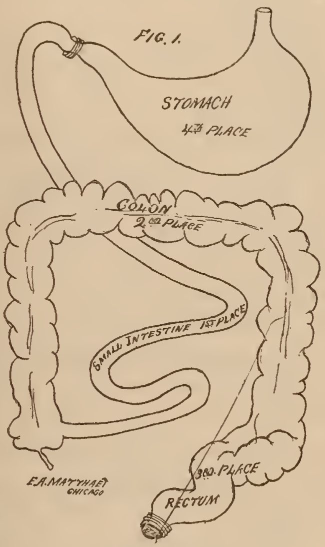
I will first devote some time to explaining as far as I can the exact manner in which these drugs produce catharsis, then give their actions and effects upon various pathological conditions, and when this is finished, will next give the composition, preparations, and other actions of various cathartics.

ACTIONS OF CATHARTICS IN HEALTH.

There are just three ways in which drugs can produce catharsis:

1. By increasing peristalsis;
2. By increasing secretion;
3. By diminishing absorption.

There are also three or four anatomical points in the gastro-intestinal tract where a drug may act in one or more of the three ways mentioned above to produce catharsis. The drug may act as shown in Figure I.:



ANATOMICAL POINTS.

(1.) *On the small intestine.*—Increasing secretion or peristalsis, or diminishing absorption.

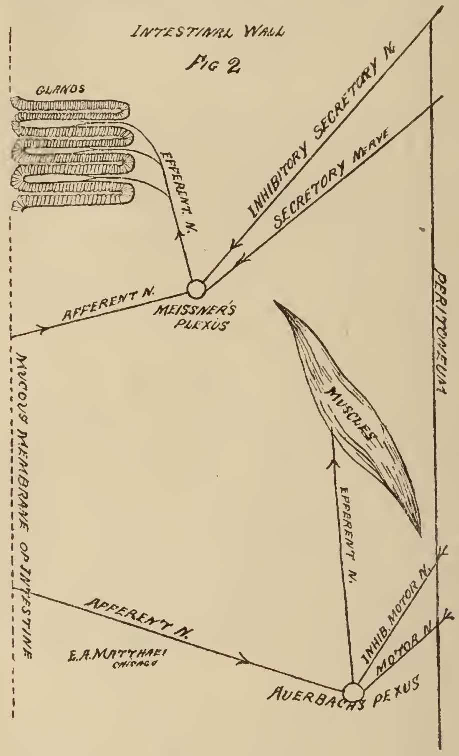
Rhubarb, castor oil, podophyllin, senna, leptandra, and calomel, probably act as cathartics mainly by stimulating peristalsis of the small intestines. Scammony and jalap, by exciting secretion of the glands of the small intestine. The salts of magnesia and soda probably lessen absorption and increase secretion from these glands as well as in the colon.

(2.) *On the colon.*—Increasing secretion or peristalsis, or diminishing absorption. It is probable that most of the drugs, which act upon the colon, act in a less degree upon the small intestine. It is probable that the saline cathartics and croton oil cause a watery discharge mainly by stimulating the glands of the colon, although they act to a certain extent on the small intestine. Colocynth, elaterium, and gamboge cause profuse watery stools by greatly stimulating the glands of the colon, and to a less extent, peristalsis of the colon; also partly by a slight action on the small intestine.

(3.) *On the descending colon and rectum.*—Aloes in full doses stimulates peristalsis, and in large doses also secretion. This is the only drug in the materia medica that acts so low down.

(4.) *On the stomach.*—Not much is known as yet about drugs producing catharsis by acting on the stomach. We know that stomachics can increase gastric peristalsis and in that way hasten gastric digestion. We also know that emetics can relax the cardiac orifice, contract the gastric muscles, and empty the stomach through the esophagus, but we yet know very little about drugs that can relax the *pyloric orifice*, contract the gastric muscles and empty the stomach into the duodenum. It is probable that if a drug can do this, it will have a tendency to increase intestinal movements. Hirsch has made a number of experiments on dogs with duodenal fistulæ to determine the action of drugs in emptying the stomach into the duodenum, but his results are negative. He has also made some experiments which led him to believe that drugs, by acting on the duodenum, can reflexly cause the pylorus to open and the contents of the stomach to be emptied into the duodenum. Oppenheimer in his experiments came to the same conclusion; namely, that drugs could empty the stomach by acting on the duodenum.

I will next try to explain the exact manner in which drugs act to increase secretion and peristalsis and diminish absorption. The intestinal mechanism is very complicated, more so even than the cardiac, and far less is known about its physiology than there is about the cardiac mechanism; so that really much that I will say is hypothetical. Yet if that is borne in mind, it will still be of use as a means of presenting the subject in a systematic way. In order to tell you the exact mode of the action of drugs on the intestinal mechanism it will be best to spend a little time in first describing its anatomy and physiology, and then we will be prepared to study intelligently its pharmacology.



NERVOUS MECHANISM.

I. THE ANATOMY OF THE FECAL EVACUANT MECHANISM.

This mechanism is a tube extending from the stomach to the anus, the walls of which contain the following structures:

(1.) *Muscles.*—These are unstriped, and there is a circular layer internally and a longitudinal layer externally.

(2.) *Glands.*—Tubular glands lined with columnar epithelium are closely packed in the mucous membrane of the tube, both in the small and large intestine. They are more numerous in the large intestine. Their function is for both secretion and absorption. In the large intestine they are used more for absorption than secretion.

(3.) *Bloodvessels.* — There is a dense network of arterioles and veins beneath the epithelium.

Over these structures a very complicated nervous mechanism presides. It consists of a local mechanism situated in the intestinal wall, and a co-ordinating mechanism situated outside of the intestine.

(*a*) *Local mechanism.*—As shown in Fig. II. the local nervous mechanism consists of ganglia to which afferent, and from which efferent nerves pass.

There are two kinds of ganglia,—Auerbach's and Meissner's. Auerbach's ganglia is between the layers of muscle, and afferent nerves pass from the mucous membrane to it, and efferent nerves pass from it to the muscles; also the motor and inhibitory motor from the brain enter it.

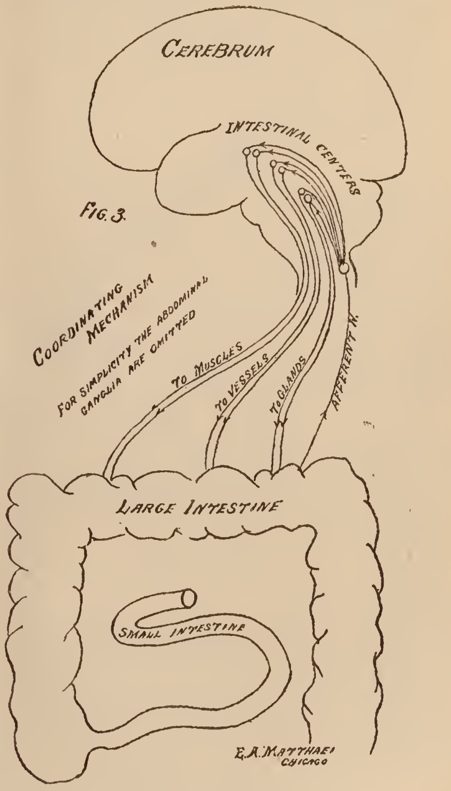
Meissner's ganglia is in the submucous coat, and afferent nerves from the mucous membrane pass to it, and efferent from it to the glands; also secretory and inhibitory secretory nerves from the brain very likely enter it.

(*b*) *Co-ordinating mechanism.*—This consists of the following:

(1.) Six centres in the brain, viz.: The motor and inhibitory motor; the secretory and inhibitory secretory; the vaso-constrictor and vaso-dilator. This is shown in the simple schematic drawing Fig. III.

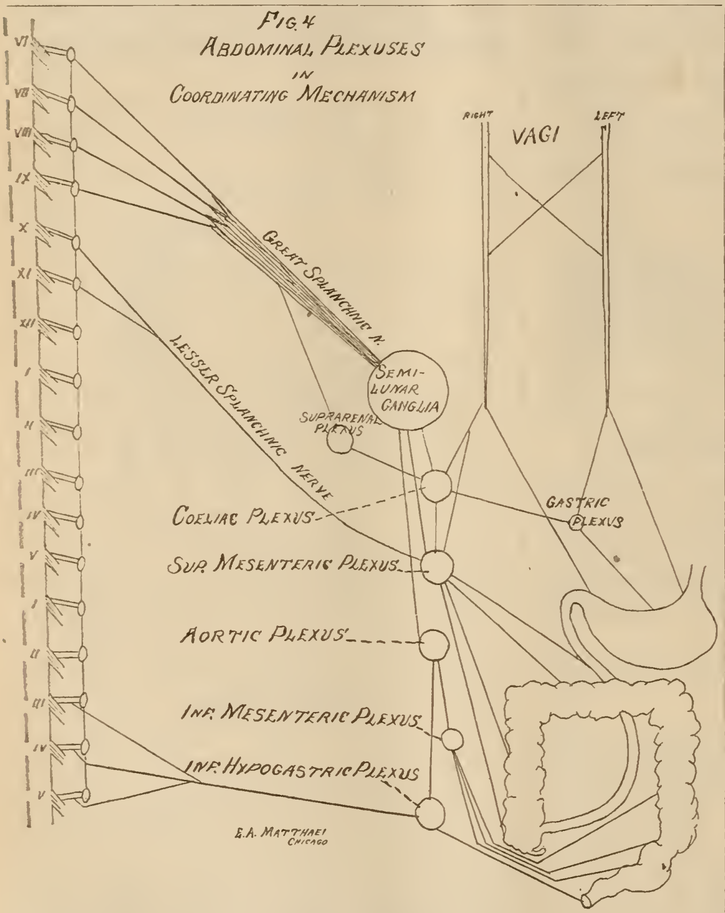
Bechterew and Mislowski have shown that the motor and inhibitory motor centres for both small and large intestines are in the gyrus sigmoideus and the optic lobe. Pal and Berggrün have demonstrated that the vaso-constrictor centre for the intestines is also located in the gyrus sigmoideus. Very little is known about the location of the secretory centre; in fact, it is not positively settled that it exists.

(2.) Six sets of fibres corresponding to these centres. These fibres pass by the vagi and splanchnics to the abdominal cavity. Since this is complicated I have thought it would be plainer if, as shown in Fig. III., I at first omit the abdominal ganglia, and show the relation between the cerebral centres and the intestines, and afterwards describe the intricate connections of the abdominal ganglia concerned in the innervation of the intestines. Different sets of fibres pass to the stomach, small intestine, colon, and rectum, but for simplicity, in Fig. III., I have represented one for all. The different fibres in the vagi and splanchnics will be described in connection with Fig. IV.



CO-ORDINATING MECHANISM.

(3.) Abdominal ganglia concerned in intestinal innervation. As can be seen in Fig. IV., the left vagus in part passes directly to the stomach, and the other part passes to the stomach indirectly through the gastric plexus. A part of the right vagus passes to the stomach, and the other part to the celiac plexus and superior mesenteric plexus, and from there to the small intestine and upper half of the colon. Usually the left vagus innervates the stomach mainly, and the right the intestines, but this is not always the case; because, as seen in Fig. IV., the fibres pass from one vagus to the other, and the number of these fibres is variable, hence the lack of uniformity of innervation. I will omit any further description of the innervation of the stomach.



INTESTINAL INNERVATION.

The vagus contains the following fibres to the intestines:

(1.) The vagus is the motor nerve for the circular muscles of the small intestine (Ehrmann).

(2.) The vagus is the inhibitory motor nerve for the longitudinal muscles of the small intestine. It probably in the same way innervates the upper part of the large intestine.

The splanchnic nerve probably receives from the centres in the brain, by the spinal cord, seven kinds of nerve-fibres as follows:

(*a*) The splanchnic is the motor nerve for the longitudinal muscles of the small intestine (Ehrmann).

(*b*) The splanchnic is the inhibitory motor nerve for the circular muscles of the small intestine (Ehrmann). These inhibitory fibres do not pass through the semilunar ganglia, but through the suprarenal plexus, which is an inhibitory motor centre; then from there to the celiac plexus, then to the superior mesenteric plexus, and from there to the intestines (Jacobi).

(*c*) The splanchnic is the vaso-constrictor nerve for the whole intestinal tract. These fibres pass through the semilunar ganglia and from there to the various ganglia to the intestine (Jacobi).

(*d*) The splanchnic probably contains vaso-dilator nerves, though this needs further research.

(*e*) The splanchnic may contain secretory and inhibitory secretory nerves, though this is not settled.

(*f*) The splanchnic is the afferent or sensory nerve for the intestine. The suprarenal plexus contains inhibitory motor ganglia (Jacobi). The superior mesenteric plexus contains inhibitory secretory ganglia (Brunton).

II. The Physiology of the Fecal Evacuant Mechanism.

(1.) Auerbach's gangliæ are both automatic and reflex centres for muscular contraction. They preside over the vermicular movements of the intestine, known as peristalsis. The peristalsis is increased reflexly, as seen in Fig. II., by the feces in their onward passage irritating the mucous membrane, which impression is transmitted to Auerbach's ganglia by the afferent nerves, and from there switched to the muscles.

The peristalsis is also influenced by the co-ordinating mechanism stimulating or depressing Auerbach's ganglia according to the needs of the organism. It is these gangliæ that cause pristalsis of the excised intestine.

(2.) Meissner's gangliæ are also automatic and reflex centres for secretion. These gangliæ are reflexly excited, as seen in Fig. II., by the feces irritating the mucous membrane. The secretion is also increased or diminished as needed by the secretory and inhibitory secretory fibres stimulating or depressing Meissner's ganglia. With this preliminary knowledge we are now prepared to understand how drugs can act on the intestine.

III. THE PHARMACOLOGY OF THE FECAL EVACUANT MECHANISM.

We must remember that the following conditions may modify or even make directly opposite the actions of drugs on the intestine:

(1.) *Venous hyperemia.*—If the circulation be normal, stimulation of the splanchnics by electricity or drugs lessens peristalsis, but if the blood is venous, it increases peristalsis. The explanation is, that the splanchnics contain motor and inhibitory motor fibres, and that when the circulation is normal the inhibitory are most affected, and hence the lessening of peristalsis; but when the blood is venous the carbon dioxide exhausts the inhibitory before the motor; hence stimulating the splanchnic when the blood is venous, or after death, instead of lessening, increases peristalsis.

(2.) *Arterial anemia.*—Here, from lack of circulation, there is an accumulation of carbon dioxide in the tissues, and the action of drugs is the same as where there is venous hyperemia.

(3.) *Amount of chyme and feces in the intestines.*—When the intestines are full, drugs stimulating peristalsis act much easier than when the canal is completely empty. Stimulating the vagus where the canal is more or less full causes peristalsis, but if it is empty, then this will not cause peristalsis.

We are now ready to study the mode of the actions of drugs on the intestine.

POINTS WHERE DRUGS MAY ACT.

The conceivable points are:

(1.) In the local mechanism as seen in Fig. II.:

(*a*) Muscles and glands;

(*b*) Auerbach's and Meissner's gangliæ;

(*c*) Ends of local afferent nerves in mucous membrane, passing respectively to Auerbach's and Meissner's gangliæ;

(*d*) Ends of local efferent nerves from these gangliæ to the muscles and glands.

(2.) In the co-ordinating mechanism as seen in Figures III. and IV.:

(*e*) The ends of the afferent nerves in the mucous membrane, which pass to the six centres in the brain (Fig. III.);

(*f*) The six centres in the brain (Fig. III.);

(*g*) The ends of the six sets of efferent nerves from the six centres in the brain (Fig. III.), which pass to the intestine by the different abdominal gangliæ (Fig. IV.), and terminate in Auerbach's and Meissner's gangliæ (Fig. II.), and gangliæ in the arteriole walls (not shown here);

(*h*) Certain abdominal gangliæ. There is at present almost nothing known about the physiology, and much less about the pharmacology of these gangliæ. It is known that the suprarenal plexus contains an inhibitory motor centre; that the superior mesenteric plexus contains an inhibitory secretory centre, and it seems probable that the semilunar ganglia contains a vaso-constrictor centre. Hence these are points where it is conceivable for drugs to act.

THE WAYS THAT DRUGS CAN INCREASE EVACUATION OF THE BOWELS.

As previously mentioned there are just three ways that a drug can cause the bowels to move—can act as a cathartic:

(1.) By increasing peristalsis;

(2.) By increasing secretion;

(3.) By diminishing absorption of the liquid in the intestinal canal.

Peristalsis may be increased either by stimulating the motor apparatus, or by depressing the inhibitory motor apparatus of the intestines.

(*A.*) The motor apparatus may be stimulated:

(1.) By moderate stimulation of the intestinal muscles catharsis may be produced. This is the way it is supposed by some experimenters that physostigmine increases intestinal peristalsis. Lead and veratrine produce gradually, even in small doses, a state of continuous spasm which prevents peristalsis and produces constipation.

(2.) By irritation of the mucous membrane, reflexly exciting muscular contractions. The irritation is conveyed both to Auerbach's ganglia and from there to the muscles, and also to the motor centre in the brain; and from there back to Auerbach's ganglia, increasing their action. This is the way the feces normally excite peristalsis for the purpose of their removal onward and out of the body. Many cathartics act in this way without entering the blood. Coarse food, as brown bread and bran bread act reflexly. The seeds in figs, raspberries, and strawberries mechanically irritate the mucous membrane. Those substances containing sugar and vegetable acids probably act reflexly, such as honey, treacle, manna, tamarinds, prunes, apples, and other fruit. It is probable that most of the drugs used as cathartics act reflexly from irritation of the mucous membrane, producing either peristalsis or secretion. Podophyllin, rhubarb, senna, aloes, castor oil, colocynth, colchicum, cascara sagrada, leptandrin, baptisin, euonymin, and taraxacum cause catharsis mainly, probably, by stimulating peristalsis reflexly by irritating the mucous membrane. Rhubarb, senna, aloes, and castor oil, after being swallowed, are partly excreted in the milk during lactation; yet it is probable that they act locally as cathartics before entering the circulation.

These drugs also produce catharsis when given subcutaneously, but it is likely that they are mainly excreted by the intestine, and, during their excretion, irritate the intestine. Ellenberger, in his experiments on horses, sheep, dogs and rabbits, to determine the cathartic action of drugs given subcutaneously, says that the following were not laxative: Podophyllin, podophyllotoxin, colocynthin, cascara sagrada, leptandrin, baptisin, taraxacum, euonymin, colchicum, and jalapin. Further research is needed. Hess, of Munich, from his experiments on dogs, says that castor oil, calomel, senna, croton oil, colocynth, gamboge and ox-gall produce catharsis by irritation of the mucous membrane. Meyer in his experiments, at the Pharmacological Institute of Marburg, with aloes on dogs and cats to determine its mode of action as a cathartic, concludes that it acts locally whether given by mouth or subcutaneously. He thinks when injected under the skin it is excreted by the intestinal mucous membrane, and then combines with alkalies or metallic salts, forming a new compound which is purgative. He thinks when swallowed it combines with these and the new compound irritates the mucous membrane, causing peristalsis. He found that when potassium carbonate or iron sulphate were added to it, it increased its action as a cathartic.

(3.) By stimulation of the motor centres, either Auerbach's ganglia or the motor centres in the brain. This stimulation increases both their automatic and reflex function.

Muscarine increases peristalsis by stimulating Auerbach's ganglia. Atropine in large doses depresses these gangliæ and in that way lessens peristalsis. Strychnine very likely stimulates peristalsis by acting on the motor centre in the brain.

(4.) By stimulating the ends of the motor nerves. These may be the ends of the nerves from Auerbach's ganglia to the muscles, or those from the brain either in the vagus or splanchnic.

(*B.*) The inhibitory motor apparatus may be depressed:

(1.) By depressing the ends of the inhibitory motor nerves terminating in Auerbach's ganglia. These nerves may be in the vagus or splanchnic nerve. Morphine in small doses stimulates the ends of these fibres in the splanchnic and lessens peristalsis; but in large doses it paralyzes them by exhaustion, and hence increases peristalsis. So morphine in small doses constipates, in large dose causes diarrhea.

(2.) By depressing the inhibitory motor centres, either the one in the brain or that in the suprarenal plexus. Nothing yet is known about drugs acting on these.

The secretion may be increased by stimulation of the secretory apparatus, or by depressing the inhibitory secretory apparatus; also by stimulating the vaso-dilator apparatus, or by depressing the vaso-constrictor apparatus.

I. — The secretory apparatus may be stimulated:

(1.) By acting on the secreting cells. This is the way that the saline cathartics in part act. Among these may be mentioned magnesium sulphate, magnesium citrate, sodium sulphate, sodium phosphate, and sodium and potassium tartrate. It might be said that this is not a secretion but simply an outward osmosis of the water from the blood into the intestine, but the water, after leaving the bloodvessels, very likely passes through the layer of columnar epithelium of the glands to reach the intestine, and this layer of cells acts as the osmotic membrane, determining the osmosis; hence it may be considered a secretion. The mode of action is simply this: Magnesium and sodium have great affinity for water, but they cannot so easily pass through the columnar layer of cells as the water, hence the water passes through to them. And, as will be shown later, these salts, for the same reason, keep all the water in the canal with them, that is, do not let it be absorbed; hence the profuse watery discharge that follows their ingestion and places them among the list of hydragogue cathartics.

(2.) By irritating the mucous membrane and reflexly exciting secretion. The irritation is conveyed by the afferent nerves to Meissner's ganglia, and from there to the glands; also by afferent nerves to the secretory centre in the brain and back to Meissner's ganglia, still further stimulating them. Most of the cathartics that reflexly excite peristalsis also excite some secretion. And it may equally be said that those drugs that mainly excite secretion may cause some slight peristalsis. Then there are other cathartics which excite about equally both peristalsis and secretion. Jalap, scammony, and gamboge cause profuse watery discharge by reflexly exciting secretion. These drugs are unirritating and inert when applied to the subcutaneous tissues, or to mucous membranes; but when they come in contact with the bile, they form a new compound which irritates the mucous membrane of the intestine. They do not enter the blood at all, and will not purge when given hypodermatically. Elaterium also causes a profuse watery discharge, greater than any other drug known; and it probably does this in the same way that jalap, scammony and gamboge do, that is, by reflex irritation of the mucous membrane. But elaterium will purge when given hypodermatically, and in this it differs from the other three mentioned. Still it probably acts locally, during its excretion by the intestinal mucous membrane. Like the others, it is inert till it comes in contact with bile; hence, after it is excreted into the intestine, it becomes a purgative. Croton oil is a violent irritant wherever applied and probably reflexly irritates the mucous membrane, causing secretion. It will do this whether swallowed or applied externally.

(3.) By stimulating the secretory centres, either Meissner's or the secretory centre in the brain. Nothing is known about drugs acting on these.

(4.) By stimulating the ends of the secretory nerves, either those from Meissner's ganglia to the gland, or those from the brain terminating in Meissner's ganglia. Pilocarpine causes a watery secretion by stimulating the ends of the secretory nerves from the brain, and in that way increasing the activity of Meissner's ganglia.

II.—The inhibitory secretory apparatus may be depressed:

(1.) By depressing the inhibitory centres, either the one in the brain, or in the superior mesenteric plexus, and may be in other plexuses. No experiments have been made.

(2). By depressing the ends of the inhibitory secretory nerves terminating in Meissner's ganglia. Nothing known.

III.—The vaso-dilator apparatus may be stimulated:

(1.) By irritating mucous membrane reflexly, dilating the vessels. It is probable all cathartics irritating mucous membranes do this more or less.

(2.) By stimulating vaso-dilator centre in the brain.

(3.) By stimulating ends of vaso-dilator nerves in the vessel-wall.

IV.—The vaso-constrictor apparatus may be depressed:

(1.) By the irritation of the mucous membrane passing up the afferent nerves to the vaso-constrictor centre in the brain and depressing it, and causing the vessels to dilate by taking off the tonic influence of the constrictor nerves. This is the way food in stomach causes hyperemia (McKendrick's Physiology).

(2.) By directly depressing vaso-constrictor centre in the brain.

(3.) By depressing the ends of the vaso-constrictor nerves in the vessel-wall.

168 So. Halstead Street.

(To be continued.)

SOME VIEWS REGARDING THE PHILOSOPHY OF DRUG ACTION.[*]

By J. W. McLaughlin, M.D.

I have been impressed for some time with the belief that the progress of medical science has been seriously handicapped by retaining certain indefinite terms—such, for example, as vital force and vital action, in the sense that they imply the existence of an unique and mysterious force which is not correlated to other forms of physical energy. Therapeutics has not entirely escaped this error. While our text-books and medical writers, as a rule, are silent regarding the cause of drug dynamics, there is a wide-spread belief that the energy of a drug is a form of force that is inherent in the drug itself and is not correlated to other forms of physical energy.

Our homeopathic neighbors are less reticent than ourselves regarding the cause of drug potency. In fact, one of the cardinal principles of the *Organon* is that the dynamics of a drug results from a spirit inherent in the drug itself, and that succussion and trituration of this only serves to separate the spirit from the gross matter of the drug, and thereby enables it to better act upon the spirit-like, vital force of man's body.

It seems to me, in the light of physical science, that the medical profession must accept either a physical or a spiritual explanation of drug dynamics. If we accept the spiritual we align ourselves with the Hahnemannians, and, I believe, place our explanation outside of scientific acceptance. If, on the other hand, we ascribe this energy to physical force, are we justified in asserting that it is an unknown, mysterious form of force? I think not; nor do I believe this is necessary. The purpose of this paper is to outline my reasons for believing that the principles of motion in matter and those of chemistry are quite sufficient to account for drug dynamics, and when these are supplemented by the principles of biology, and legitimate deductions from them, they will indicate the nature of the therapeutic action of drugs as intelligently and far more scientifically than is done by assuming the existence in drugs, and in man as well, of an unknown, mysterious force.

---

[*] Read before the Therapeutic Section of the first Pan-American Medical Congress, Washington, D. C., September 5—8, 1893.

I do not, however, offer this scheme as an elaborated theory of drug action ; this would involve an explanation of both the dynamics of the drug and of the organism upon which it acts, an impossibility in the present knowledge of molecular physics. It is my purpose rather to outline, or suggest, a hypothesis which may eventually, when a knowledge of the factors involved becomes more accurate, be worked into a demonstrable theory of therapeutic action.

A perfected theory of drug action will then involve a scientific explanation of the dynamic energy of drugs, and how this energy affects the organism in the cure of morbid action. I will pursue this line of inquiry as far as accepted principles of science will allow, and will then continue the investigation on these lines as far as legitimate deductions from these principles will justify. Even then, many of the details of therapeutics will have to await further light before they can receive scientific treatment.

Scientists, almost universally, believe in the discontinuous or corpuscular condition of matter. The usual form of this belief is that all material substances, whether solid, liquid, or gaseous, are composed of molecules, and these molecules of atoms. We understand a molecule to be the smallest part of a substance in which its properties inhere. An atom is understood to be the smallest conceivable part of matter which is capable of going in and out of chemical combination. Now, as atoms are thought to exist only in combination, or couples of the same kind, which are termed molecules, especially by physicists, they must not be confounded with these molecules which are composed of atoms of dissimilar nature. Molecules in the latter sense vary in size and complexity ; for example, a molecule of water is quite simple, being comprised of but few atoms, while an albumin molecule contains a great many atoms, and is massive and quite complex in its structure. An atom is regarded from a chemical standpoint as a chemical unit, while from the standpoint of the physicist, the molecule or atomic couple is the physical unit.

The physical units, or molecules, are believed to have figure, polarity, elasticity, and persistent and regulated motions of two kinds, interior and translatory.

The interior motions, or those which take place within the molecules, occur in periods of time that are persistent, and are distinctive of the class to which the molecule in question belongs. As my hypothesis of drug action will rest upon the correctness of the theory that molecules vibrate in definite, unvarying and distinctive periods, I will be pardoned for introducing the views of others upon this subject. Prof. J. Clerk Maxwell, whose authority and distinguished ability in physical science will not be questioned, says, "Molecules exist of various kinds, having their various periods of vibration, either identical or so nearly identical that our spectroscopes cannot distinguish them. The same kind of molecules, say, that of hydrogen, has the same set of periods of vibration, whether we procure the hydrogen from water, from coal, or from meteoric iron." Henry Hobart Bates, A.M., in an address to the Philosophical Society of Washington, in 1883, says regarding molecules and their activities: "But could the molecule even be magnified to visible and tangible dimensions, with a new light to view it by, it could not by any means be rendered visible, in whole or in its parts, on account of its incessant and marvellous activity, both interior and translatory. That the molecule did not get its interior motion from the heat of dissociation is certain, for in being allowed to recombine it yields up its translatory activity, and with it, as many degrees of temperature as disappeared in accomplishing the dissociation. No means of wholly destroying the interior motion are known. By some *savants* it is regarded as primordial and ultimate. It is highly probable, for reasons which Mr. Taylor has pointed out,* that the hydrogen molecule contains at least four pairs of revolving elements, revolving in different periods, and in contractile orbits, but with periods as undeviating as those of the moons of Mars. It is in the revolving or vibratory constituent of this couple that we seek the final essence of matter, though perhaps not to arrive at it. We must not endow it with gratuitous attributes, but it is surely an entity of some kind, having in the first place, persistent and regulated motion. Secondly, it has inertia, or mass—the property of conserving *vis viva.* Thirdly, it has some bond with its fellow by which the motions of both are modified by a constant stress according to a definite law of distance, and this, following Newton, we call attraction. Fourthly, it has the complex property of interchange of momenta, accompanied by that of conserving and compounding motion by angular rebound upon an indefinitely near approach, which we name resilience, or repulsion. Dimension it need not have, or any other property of masses, but nobody ever has yet succeeded in getting rid of the above four."

But if the world were made of atoms and molecules alone, we could never know of their existence. It is necessary to have an elastic and highly attenuated medium, permeating all space, to reproduce and transmit, as wave-motions, atomic and molecular vibrations.

This medium we call the universal ether, luminiferous ether, or simply ether. It is believed to pervade all space, and to reproduce the specific motion of all atoms and molecules; for example, the vibrations of an atom or molecule are thus reproduced in the ether as wave-motions having periods equal to those of the atom or molecule which caused them. Now, when we consider that all matter is composed of molecules, and these, perhaps, of other molecules—certainly of atoms—and that specific vibrations of these various, and differently vibrating elements are reproduced in the ether as specific waves, it becomes apparent that a conflict between these must occur; coincident waves will be amplified, while non-coincident waves will be destroyed by this action. It is well known that waves of water which coincide in crest and trough will be amplified thereby, but when the crest of one set corresponds to the trough of another set of waves, they will destroy each other. Likewise, waves of light and sound will behave in like manner under like circumstances. Sir John Herschel, in speaking of the law of interference, to the operation of which the above phenomena are one, says, "This principle, regarded as a physical law, has hardly its equal for beauty, simplicity and extent of application in the whole circle of science." When we then consider, in the light of the principles of science above referred to, the conflict between the ether-waves produced by the atomic constituents of a molecule, say of a drug, it will be seen that some of the waves will be amplified, others diminished or destroyed, and all, perhaps, changed.

The wave-motions of a molecule are then quite different from those produced by its elementary constituents; they have different periods, and represent an adjustment of the wave-conflict of its atomic elements. Now it is the ether-waves of the molecule, which have resulted from an adjustment of its atomic waves, that, I believe, give the molecule its dynamic energy. And as the molecule is the smallest part of matter—drug, in which its properties inhere, the dynamic energy of the drug must be the same as that of its molecule, *i. e.*, the successive impact of its ether-waves, recurring millions of times in a second, give the drug its dynamic energy.

---

* Annual Address before the Philosophical Society of Washington, D. C. 1882, p. 24.

The forms of specific energy which different drugs have, will, according to this scheme, result from differences in their molecular make-up. But the dynamic energy of a drug is quite a different thing from its therapeutic energy. The first bears a certain relationship to the drug itself, and is a constant quantity in normal condition of the drug, while the second depends upon an additional factor—the organism on which it acts—and is, therefore, not a constant quantity; a drug is often harmful to one kind of animal, and harmless to another. As the eye, the ear, and nerves of the body are sensitive only to certain influences—for example, the eye to waves of light, and the ear to waves of sound—it is believed that the sensitiveness of animals to drugs is likewise the the result of a definite relationship between the molecular ether-waves of the drug and those of certain tissue-elements of the body; and when this does not exist, the animal is immune from the drug in question.

A rational theory of therapeutics, that would enable one to say how, and why, drugs relieve morbid action, cannot, of course, be constructed on ether-wave interactions between the drug and tissue elements of body concerned, until we know in what period these waves recur; yet, there are physical and physiological facts, and certain pertinent analogies, that lend probability, at least, to this hypothesis of therapeutic action. The most apparent of these are as follows, viz.:

(1) The tissue-elements of the body offer no exception to the law of discontinuous or corpuscular nature of matter, or, that the molecules and atoms of these vibrate in definite and distinctive periods.

(2) Organic molecules, such as compose living organisms, and especially the albuminoid molecules which comprise the principle bulk of man's body, are exceedingly complex in molecular structure, being composed of other and simpler molecules in innumerable number. These albuminoid molecules of the body exist in many isomeric forms—that is, contain the same chemical elements, and in the same proportion, but differ as to the manner these are grouped in the molecules—and have lines of weak union, like the lines of cleavage in crystals, along which they are easily broken.

Now, as the ether-waves of a substance are determined more by the grouping within its molecules, rather than by its chemical elements, may not the facts above related serve to explain, first, the specific action of drugs, and second, that immunity from these, which an habitué of a drug is known to acquire? The first supposition is borne out by the differences of molecular structure of the various isomeric forms of albuminoid molecules and structural differences in the molecules comprising the other tissue-elements—when these are considered in connection with the susceptibility of the molecules to the dynamic energy of drugs, which these differences produce. The specific action of a drug upon a group of like molecules, would then depend on their molecular structure, and the wave-period resulting from this. What happens to the albuminoid molecules by the wave-impacts of the drug, will depend on whether the waves of the two—drug and albuminoid— coincide in crest and trough. If they do, the albuminoid would most probably be disrupted, especially if its habitat is in the fluids of the body. But albuminoid molecules of the solids of the body are more firmly united to their fellows, and, therefore, might not be disrupted by the dynamic energy of the drug. More likely, the ether-waves of the drug would find vulnerable points along some of the lines of weak union of the molecules, and attacking these, would simply change the molecular structure of the albuminoid, and would thereby give them that immunity from the drug which follows its constant use. If, on the other hand, the waves of the drug, and those of the albuminoid molecules, do not coincide in crest and trough, then the tendency of the first would be to antagonize or destroy those of the second.

The analogues which we shall offer in support of this hypothesis of therapeutic action are derived from the principles of heat, light, electricity and sound. There are but few principles of science, whose truths rest upon acurate demonstration, that are more firmly established in the opinions of scientific men than is the belief that these forces of nature—light, heat, electricity and sound—are essentially wave-motions. And as these forces are known to have a wondrous energy and to be capable of producing changes of a pathological and curative nature in the living organism, is it not probable, at least, that other waves, say, those of a drug, may also exert an influence, and that the potency of the drug rests in susceptibility of tissue-elements to the dynamics of the drug? The therapeutic power of these agencies and their various methods of application, are so well known that it is deemed unnecessary to recount them here. Sound is perhaps the least potent in its therapy, yet the effect of sound-waves over the emotions and passions is certainly very great. For illustration, martial music inflames man's military ardor; sacred music excites his religious emotions; while the soporific effect of monotonous musical tones is well known, illustrated by the pattering of the rain-drops, the sound of a distant waterfall, and the nurse's lullaby.

Now, with the light before us, we must refer the distinctive energy of the forces named to peculiarities of their wave-periods, and it is therefore not unscientific, in view of the facts recounted, to also refer the distinctive energy of a drug to peculiarities of its wave-period.

SUMMARY.

The principal features of this hypothesis may be summarized as follows: The dynamic energy of a drug is derived from its molecular ether-waves, and these are the sum of those produced by the vibration of its atomic constituents, plus their adjustment by interference.

The specific energy of a drug is derived from the specific character of its molecular waves; and the specific character of the waves is determined by (1) the chemical elements of the drug-molecule, and (2) the order in which the atoms and elementary molecules are grouped in the same.

The therapeutic energy of a drug is determined by susceptibility of organic—the molecules of the organism acted on—to the specific energy of the drug.

The degree of susceptibility of an organic molecule to the specific energy of a drug is in direct ratio to the coincidence of their wave-periods.

The degree of immunity of an organic molecule from the specific energy of a drug is in an inverse ratio to the coincidence of their wave-periods.

Coincidence in crest and trough of the molecular waves of the drug, and those of susceptible organic molecules, will tend to disrupt the latter. Now, coincidence of these waves will tend to inhibit or disarm those of the organic molecule by weakening or destroying its wave-motion. In either case the organic molecule will have acquired immunity from the drug.

These views are either based on the following accepted principles of science, or on legitimate deductions from them. They are as follows: (1) The discontinuous or corpuscular condition of matter; (2) all matter, whether gaseous, liquid or solid, is comprised of molecules, and the molecules of atoms, or elementary molecules; (3) atoms vibrate in periods that are persistent and regular, that is, the vibrations are distinctive of each kind of atom; (4) the principles of wave-motion; and (5) the isomeric forms of albuminoid molecules and their unstable and complex character.

The hypothesis is also strongly supported by the conviction that the therapeutic value of light, heat, electricity and sound must be referred to peculiarities in their wave-periods, as that of drugs is to the peculiarities of their wave-periods.

Austin, Texas.

THE RELATION OF CERTAIN URINARY CONDITIONS TO GYNECOLOGICAL SURGERY.[*]

By CHARLES P. NOBLE, M.D.,
Surgeon-in-Chief, Kensington Hospital for Women,
Philadelphia, Pa.

Early in my career as an operator I lost three patients from suppression of urine following operation. This experience forcibly called my attention to the relation which exists between the condition of the urinary organs and the successful or disastrous results of operation, and led me to give the subject careful and systematic study. It is my purpose to record in this paper the observations which have been made and the conclusions reached from a study of some five hundred cases at the Kensington Hospital for Women. It will be convenient to cover the subject by a discussion of several propositions, as viewed from the standpoint of the practitioner rather than from that of the pathologist.

I.—ALBUMINURIA IS A FREQUENT CONDITION AMONG GYNECOLOGICAL PATIENTS.

It is my practice to have the urine of every patient admitted to the hospital examined chemically and microscopically. When convenient, the urine of patients requiring grave operations is examined repeatedly, and this is always done when the first examination proves unsatisfactory. The "heat and acetic acid" and the "ring" (nitric acid) tests have been used to determine the presence of albumin, being considered the best for clinical purposes. It has been found that ten per cent. of the patients admitted have albuminuria.

II.—ALBUMINURIA OFTEN IS NOT SIGNIFICANT OF SERIOUS DISEASE.

In general medicine it has been learned that albuminuria is by no means necesssarily of serious import. Frequently it is of transient character, due to acute conditions from which the patient entirely recovers. This is even more frequently the case among gynecological patients.

The urine of women intended for a chemical examination should always be drawn by catheter. Unless this is done the presence of albumin in the urine may mean only that a certain amount of vaginal discharge, or perhaps, of menstrual discharge, has become mixed with the urine. In private practice, when a catheter is not available, the woman should at least be given a vaginal douche and have the external genitals washed before passing urine intended for examination. In this way fairly accurate results may be obtained. Eliminating such external sources of contamination, albuminuria in women may be, and often is, due simply to bladder irritation or to cystitis. Should a careful examination of the urine show the absence of tube-casts, and the presence of some albumin, pus, and bladder epithelium, especially if the specific gravity is 1,018 or more, it would indicate that the albuminuria was from the bladder and not from renal disease.

Albuminuria from ureteral disease and from pyelitis is not so very easy to determine; and it is to be hoped that the use of the ureteral catheter in the study of this question may help to make it clear.

Albuminuria from the above sources does not unfavorably influence the prognosis in operations.

Albuminuria of renal origin is not always significant of serious disease. At times it is not accompanied by the presence of tube-casts in the urine, and is of an intermittent character; in such cases being due probably not so much to the renal disease as to some interference in the metabolism of the nitrogenous food-products. Several such cases have been under my care; and quite recently I performed ovariotomy upon one in which large quantities of albumin would be present one day, and the next day it would be entirely absent. The urine was otherwise natural. The urinary condition was not at all influenced by the operation. Repeated examinations of the urine in this case showed the absence of tube-casts, and I believe that the kidneys are perfectly sound.

---

[*] Abstract of a Paper read before the Section on Obstetrics and Gynecology of the first Pan-American Medical Congress, Washington, D. C., September 5, 6, 7, 8, 1893.

Another class of cases in which albuminuria of renal origin is not significant of danger, is that in which it is produced by the presence of large tumors. Here the presence of the albumin is due to the pressure of the tumor upon the renal vessels.

III.—The Presence of Tube-Casts in the Urine is not Always Significant.

In the cases of large tumors even the presence of tube-casts in the urine does not signify that the patient will not recover from operation. In many such cases the condition of the kidneys is directly due to the pressure of the tumor, and when this is removed, such patients often get surprisingly well, and their kidneys become practically normal.

But all gynecological cases requiring operation, and having tube casts in the urine require, in my judgment, the most careful consideration. Repeated examinations of the urine to determine not only the presence and quantity of albumin, casts, and sugar, but also its specific gravity, the total amount of the urine passed, and the amount of urea and other solids it contains, are of the greatest importance. Should such examinations show the existence of gross structural disease of the kidneys and indicate the early death of the patient from the kidney disease, it is more than questionable in such cases whether it is wise to operate.

The existence of chronic interstitial nephritis (contracted kidney), is a contra-indication to any operation of gravity. In such cases, at times, albumin is absent or only occasionally present, and then in very small quantities. Tube-casts may be absent, or at least the most careful examinations may fail to reveal them. If repeated examinations of the urine show the occasional presence of small quantities of albumin and of granular casts, and a low specific gravity, the surgeon should be on his guard. A woman having such kidneys will not survive a serious and prolonged operation; she will die from shock or from suppression of the urine.

I believe that the prognosis after operation is most favorable in women (the subjects of renal disease) having fairly large tumors, especially ovarian cysts. In this class of cases in general, the operation is quick and easy and no septic material is present. By the operation the pressure of the tumor is removed from the crippled kidneys, with the result that they secrete, usually, more urine than normal kidneys.

When kidney disease is complicated by a small tumor, that is, when the kidney disease is not dependent on the presence of the tumor), the prognosis depends entirely upon the character and extent of the kidney disease. The factor of the removal of the intra-abdominal pressure does not come into play in such cases.

In cases of tubo-ovarian inflammation, especially of marked character in women whose health is entirely broken down, the prognosis is very bad, when the renal disease is of a serious character. The reasons why such cases do not do so well after operation as cases of large cysts is clear. The factor of the removal of the intra-abdominal pressure is absent here, and in addition, we have a long operation, involving considerable handling of the pelvic viscera, and usually the escape of septic matter into the peritoneal cavity, necessitating irrigation and drainage. The long operation, and the handling of the abdominal viscera, promote shock, and such patients are apt to die from suppression of urine. I speak from the experience of two deaths in this class of cases. Occasionally women will have suppression of urine after operation, even when no kidney disease exists. I have had one such case in which the operation was very simple.

IV.—The Secretion of Urine is Diminished after Operation for Several Days.

This statement is a matter of universal observation. I have had careful records kept of the amount of urine passed by patients after abdominal section in all my cases. These records are practically accurate. In the time at my disposal it was not possible to look through the entire list of cases, hence I have selected the last fifty consecutive celiotomies for tabulation. Dr. W. F. Parke, Assistant in Gynecology at the Kensington Hospital for Women, has kindly prepared this table for me. We find that the patients pass, on an average, ten ounces of urine the first day after abdominal section; fifteen ounces the second day; thirteen ounces the third day; fifteen ounces the fourth day; and nineteen the fifth day, after which time the amount gradually increases. There are certain sources of error in this table. The first day really includes only about eighteen hours, and is made up of that part of the day subsequent to the hour of operation, and the following night. The other days are twenty-four hours each. On the third day, at times, the amount of urine is estimated because upon that day the patient's bowels move. With the free purgation naturally the amount of urine secreted is less. The same source of error exists for the subsequent days. One patient died at the end of twenty-four hours, a slight source of error for the following days. The smallest amount of urine passed on the first day was three ounces; the largest amount thirty-three ounces. The smallest amount passed on the second was six ounces; the largest amount, twenty-nine and a half ounces.

In conclusion I would emphasize especially the following points:

1st—The importance of the systematic examination of the urine of gynecological patients, especially of those requiring celiotomy.

2d—*That the presence of albumin and of casts in the urine need not affect the issue of the operation.*

3d—*That serious and prolonged celiotomies involving much handling of the abdominal viscera in women having chronic Bright's disease (especially the small contracted kidney) usually terminate fatally.*

4th—*That the prognosis is best when the presence of albumin and casts in the urine is due to the pressure of an ovarian cyst which can be quickly removed.*

2134 Hancock St., Philadelphia, Pa.

THERAPEUTIC NOTES.

By Ernest B. Sangree, A. M., M. D.

Glycerin in Glossitis.

According to the books, glossitis subsequent to an inflammation of throat and tonsils is of rare occurrence. I had such a case last winter. The patient was a German, about forty years of age, a cabinetmaker by occupation. He came to the office complaining of his throat. Upon examination, moderate congestion was noticed in the pharynx and tonsils. The next day but one I was called to the house and found him in bed with considerable fever; tongue greatly swollen and protruding from the mouth, and much constitutional disturbance. During the afternoon he had not been able to swallow even a teaspoonful of water. I gave him some liquid medicine, however, which under my directions he succeeded in taking. In addition to this remedy for the fever and inflammatory condition, I directed his wife to apply every half hour with a feather, pure glycerin to the hard, swollen and stiffened tongue. This procedure, doubtless owing to the glycerin's power of absorbing water through the tissues from the engorged vessels, rendered the tongue more mobile, so that he not only experienced much relief but could also swallow much easier. I am convinced that the glycerin, which I have never seen recommended for this trouble, gave him much comfort and materially aided in his recovery.

Freezing the Vagi for Asthma.

Six days ago I was called to see a man, aged forty-two years, suffering a most violent attack of asthma. His first attack dated back some five years, and was attributed, perhaps justly, to an occupation which exposed him all day to noxious gases from steamer furnaces.

His ordinary attacks average about one a week, and last from a few hours to a day; but once or twice yearly, at the beginning of cold weather, as a rule, he has an exacerbation that lasts a week or more. During these five years he has tried many physicians, and has personally tested about everything recommended for asthma with little or no beneficial result; he is compelled simply to let the paroxysm wear itself out. When I was called he had been suffering for more than a day, and if possible was growing worse instead of better. Besides the extreme difficulty in breathing, he was afflicted with a severe, dry cough, that drove the blood into his head so as to cause agonizing pain. The room was heavy with the fumes of substances which he had inhaled in vain. Though it was a case of bronchial asthma I concluded to try nitroglycerin, and gave him one-half drop of a one per cent. solution every half hour. At my next visit the following day, he told me that the medicine had given partial relief within a few minutes after taking it, and that as long as the medicine lasted this relief continued. About 1 A.M. the nitroglycerin was exhausted and the attack immediately regained its former severity. I renewed the medicine with the same result the next day. Though more comfortable while taking the glonoin, he could not lie down and had been able to get but a few minutes of fitful sleep since the onset. Feeling somewhat uneasy regarding the amount of nitroglycerin he was taking, and reasoning that perhaps the spasm of the bronchi might be due to an irritable condition of the pneumogastrics, or at any rate, that they were intimately concerned in the trouble, I advised him to wrap in a towel a quantity of small pieces of ice and apply this over the course of the pneumogastrics in the neck.

The next day I was delighted to learn that within five minutes after the ice was applied the spasm entirely left, and he fell asleep almost as quickly. This was the first real sleep for four days and it lasted three hours. What awoke him was pain caused by the chilling of the ice. He went to sleep again at twelve and slept till two; again at three till half past five. The intervals he employed in applying cold cloths to his neck, as the pain was too great to allow of the ice. Spasms frequently threatened him, but the tendency was instantly allayed by the application of cold over the vagi. Heretofore the paroxyms have invariably stopped very gradually, so that this sudden stoppage was quite new to him, and I feel confident can be attributed to nothing but the ice. By the next day the asthmatic tendency was gone, and by the day after he was at work.

744 S. 15th St., Philadelphia.

A REPORT OF THREE RECOVERED CASES OF ASPHYXIATION FROM ILLUMINATING GAS.

WITH SOME OBSERVATIONS ON THE RESPIRABILITY OF OXYGEN AND A DESCRIPTION OF A NEW RESPIRING TUBE.

By J. MOUNT BLEYER, M.D.,
Laryngologist to the West Side (N.Y.) German Clinic, etc.

Within one week recently three cases of asphyxiation from illuminating gas came under my care. They were cases of great urgency, and as the patients in each instance had been breathing in the gas from six to eight hours they did not promise much result when I first saw them.

On the morning in question I was summoned to a hotel, a stone's throw from my office, where a guest had been discovered unconscious in his room by one of the attendants. Two burners of a capacity of six feet per hour each were turned full on, which made the cause of the man's coma apparent.

The patient, *Don A.*, 63 years old, from Costa Rica, where I am told gas is little used for illuminating purposes, had retired at 10 o'clock the evening before, closed all windows and doors, and bidding his physician, Dr. C., who accompanied him and who occupied the adjoining room, good night, prepared for bed.

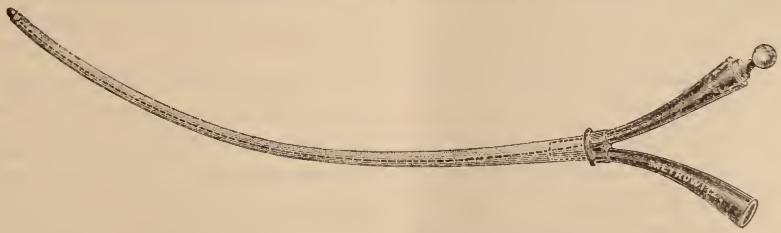
This, with the onturned gas-burners, was the whole history of the case from that time until day-break—when he was discovered—that I could get.

Don A. lay upon his back in a state of profound coma. His face, notwithstanding his naturally dark complexion, was almost livid. The muscles of the face, neck, abdomen and thorax, twitched violently as if stimulated by strong faradic currents. His respirations were prolonged and shallow, particularly expiration, as nearly as I can recall them now, for I had no opportunity to make carefully detailed observations; at the time they were certainly not over four per minute. The pulse at the wrist and carotids was scarcely perceptible, and the heart's action was faint and irregular. It was all but flickering out, and once or twice from the long intervals between the beats I imagined that it had ceased altogether.

The first thing I did was to dispatch a messenger for a tank of compressed oxygen, which was obtained from Dr. Walton's factory in a very short time. While awaiting the arrival of the gas I remembered that I had just received from Myrowitz & Bros. my new model of an artificial respiring tube which I had devised for use in such cases of intubation of the larynx where there was danger from impending asphyxia. My assistant, Dr. Weill, secured the tube.

That this model of the respiration tube did efficient work, notwithstanding for a time we attributed it to the oxygen gas, is evident.

I append a drawing of the instrument.



It consists of a cylindrical tube about 12 inches long, made of flexible rubber, similar to that of which the ordinary esophageal catheters are manufactured. This is fixed at the upper extremity to a bifurcated tube of hard rubber, one extremity being intended for inspiration, the other for expiration. The lower tube is stiffened by a wire stillette for piloting the tube into larynx and trachea.

The objects of the bifurcated end are many; air may be sent through it by gentle blowing, or from a tank; a bellows, too, may be attached and in this manner air or gas may be sent down into the smaller bronchi. The air may be heated to any desired temperature by dividing the rubber tubing from the tank or bellows and securing them with a section of metal tubing, under which an argand burner may be placed and the heat regulated by a thermometer stationed a short distance from the metal ends.

With the hurried examination of the patient here recorded I began the work of attempting restoration.

After injecting two syringefuls of brandy I pried open the tightly fixed jaws, partially overcoming the trismus with a gag which I left *in situ*. The tracheal end of the tube was quickly piloted to a point about one inch and a half from the bifurcation of the trachea, and the oxygen turned on. The oxygen, about which I know nothing save that Dr. Walton tells me it contains one per cent. of ozone and a percentage of nitrogen monoxide, I further diluted by allowing air to enter through one end of the bifurcating tube while the oxygen was flowing.

For the first half hour no change in the patient was observable either to the eye or ear, save that the lividity decreased somewhat, as I also thought was the case with the muscular tremor. My assistant made gentle friction over the body, and applied the various methods of stimulating the muscles of respiration by means of faradism, etc.

The case at this stage looked extremely unpromising, yet we persisted with our treatment as before. At the end of an hour of hard work the respiration became a trifle deeper and increased to 10 per minute. The pulse at the corotids, too, now was readily appreciable, and the heart's force, particularly during systole, became stronger.

As the respiration and pulse toned up, the involuntary twitching diminished and I withdrew the tracheal tube after the contents of the first tank of gas were exhausted.

Three hours had elapsed. The bed of the patient being moved over near a window to catch the incoming air, I made a more extended examination of the physical condition. Over the surfaces of both lungs from the apices down to the fourth inter-costal space, where they diminished in intensity, loud, bubbling rales could be readily heard without a stethoscope. This led me to anticipate the possible oncoming of a pneumonia from the irritation of the illuminating gas in the walls of the alveoli, and the consequent transudation of liquid into them. The respiration had now reached 10 per minute, and the heart's action indicated that the organ was making a struggle to overcome some resistance in front of it. There was no evidence of returning consciousness.

It looked as if the chances of the man's recovery from now on were good, and I was not a little astonished at what I regarded as the effect of the oxygen.

My former experience with oxygen had been very unsatisfactory, and even under ordinary conditions, with the respiratory organs in normal state, I had found that the weight of the gas impeded the likelihood of its osmosis through the walls of the alveoli. Here, however, to all appearance, oxygen had rendered a better account of itself without any particular reason therefor. We steadily gained ground until 4 o'clock in the afternoon, when the pulse suddenly became rapid and feeble and the heart turbulent. A cold, clammy sweat broke out all over the surface of the body, and the condition of the patient again became extremely precarious.

We held a hurried consultation, and while we were averse to add to the force behind the heart, we yielded to the advisability of injecting ^{1} grain of strychnine. This dose had the effect of restoring the heart's tone and the patient again rallied. At nine o'clock in the evening the patient was left to the care of his own physician; fourteen hours after he was first seen he had not regained consciousness.

At five o'clock next morning, when I again saw him, he opened his eyes and began to mutter incoherently. From this out his recovery was rapid, and he was soon able to take a cup of bouillon and other stimulants, and before nightfall he was able to sit up and converse intelligently with those around him, although he did not realize the close shave he had for his life, and apparently remembered nothing of what he had gone through in the forty-eight hours since he went to bed after blowing out the gas.

Strange to say, three days later I was summoned to the same hotel, to the very same room, where two boys, also from Costa Rica, had adopted the Don's method of extinguishing the gas and were found in bed unconscious from its effects.

They were aged 16 and 18 years respectively, healthy and strong. From statement of the attendant, they had been in the room nine hours before the odor of the gas was traced to the apartment they occupied.

I adopted similar tactics, with the single exception that I used but a very small quantity of oxygen, which I allowed to mingle with the contents of a tank of compressed air that I had prepared for just such an emergency, by passing it through caustic soda and distilled water to free it from organic matter and nitrous compounds before confining it in the receiver. The recovery of the lads was far more rapid, and in 3 hours they were restored to consciousness, although in the case of the younger boy a rapid rise of temperature, together with a tense, hard pulse of 130 caused me to have some alarm over his condition. The temperature rose to 103.5° F., and as the symptoms strongly indicated pneumonia, I had him removed to Bellevue Hospital, on account of the proprietors of the hotel, who did not care to have any more publicity. He remained for two weeks, at the end of which time he was discharged. The diagnosis in his case by the attending physician of the hospital was pneumonia, due to the irritative quality of the gas.

Before closing this report, permit me to say a word regarding the respirability of oxygen as I have found it. The high specific gravity of oxygen as compared with ordinary air, weigh against the chances of the gas being disposed of after it enters the alveoli, and hence in the lungs, already impaired in function with a greater or less paralysis of muscular and nervous function, pure oxygen is not respirable. Further, it seems to me that in the many cases where restoration from asphyxiation is effected and attributed to the action of oxygen, such recovery in my opinion was due to the inhalation of air (Nature's dilution), and the consequent dilution of the oxygen to such a state that the amount of air that entered the lungs far exceeded that of the oxygen.

I am firmly convinced that fresh, pure air, relieved of organic matter and confined in a receiver, say like Gallibert's apparatus, or any other, which many doctors already possess, at a moderate pressure great enough to supply the force normally exercised by the respiratory muscles in getting the air into the alveoli, is all that is needed to stimulate the respiratory apparatus to resume its function and relieve the blood of the incubus placed upon it.

The minute structure of the lung, particularly the membrane lining the alveoli, where the transfer of oxygen is made to the blood is not such as to allow pure oxygen to osmose through them; hence respiration with that gas cannot go on. To increase or hurry on oxidation we must proportionately increase the respiring powers. In partial asphyxiation we have a state of affairs where these forces are decreased, and hence it appears evident that oxygen becomes useless, not because there is any difficulty in forcing it into the alveoli, but because once it gets there it cannot be displaced or made use of.

This is the lesson which I have drawn from eight cases of partial asphyxiation that I have seen in a practice of a dozen years, and while I have always used oxygen in treating them, I have done so for the last time.

460 Lexington Ave., New York City.

DESANT'S RESPIRATOR.—In cases of apparent death from drowning, asphyxiation, or from certain kinds of poisoning, it is often a question, says the *Scientific American*, whether animation is only suspended, or whether life is really extinct.

Mr. William F. Desant, of New York, has invented an instrument for producing artificial respiration, which consists of two cylinders, a handle connected with two plungers, two inlet and two outlet valves, and rubber tubes and mouthpiece or tracheal tube, which may be regulated to suit the requirements of any case, both in the number of respirations per minute and the volume of air injected into and removed from the lungs. The cylinders have a capacity of 20 to 30 cubic inches, which is about the range of the capacity of human lungs. This being the maximum, the amount of air is reduced more or less, according to the requirements, by simply reducing the stroke of the pistons.

The instrument is constructed so that it can be easily and quickly taken apart after use, and disinfected by immersion in a solution of carbolic acid or chloride of mercury. The respirator not only forces air into the lungs, but also draws it out without volition on the part of the patient. For this reason it is especially useful in advanced stages of phthisis, where the effort of breathing is exhausting to the patient. In cases of anæsthesia resulting from the use of ether, cocaine, morphine, or other drugs, also in asphyxiation from illuminating gas, poisoning, or electric shock, this respirator is effectual in restoring the patient by maintaining respiration after the lungs are incapable of performing their proper office.

In cases of still birth, where all other methods have failed, it is said to give excellent results. In case of diseased lungs, the device is used for applying medicated air, ozone, or other remedial agents. It is also used to give relief in cases of emphysema and asthma. In cases of drowning, the water is drawn from the lungs and pure oxygen substituted until the lungs are able to act unaided. The apparatus has the indorsement of physicians and surgeons.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. NOVEMBER 15th, 1893. No. 5.

Editorial.

OXYGEN IN ASPHYXIA.

In discussing the employment of oxygen gas in the treatment of asphyxia it is necessary that we should have a proper conception of the rôle which this agent enacts in maintaining the integrity of the entire economy. Because this gas is supposed to have a revitalizing effect upon the tissues, is not in itself sufficient to warrant the conclusion that it will be useful at all times in cases of asphyxia from illuminating gas. The object, of course, is to enable the system to throw off not only the poisons due to the presence of illuminating gas, but to enable the protoplasm to discharge accumulated carbonic acid which, it should be borne in mind, is an anesthetic of no small power. Profound coma under these conditions is, therefore, considerable more than mere poisoning from the gas escaping from the open burner; it is also anesthesia from the presence of carbonic acid in the tissues.

In previous numbers of this journal we have considered at some length both the scientific and therapeutic adaptation of oxygen, and for the present we shall consider briefly the conditions to be met and overcome, together with the methods to be followed in the treatment of asphyxia from the escape of illuminating gas, because the frequency of occurrence of these cases is sufficient to warrant our careful study. Moreover, while these remarks are not prompted by any disposition to be hypercritical, the conclusions arrived at by our contributor in the present number, Dr. BLEYER, appear to be so at variance with our previous teachings that it will be advisable to give the subject a re-hearing.

In order to state the case fairly, we must bear in mind that when a person suffering from asphyxia breathes but four times per minute, the inspirations being shallow, probably not more than five cubic inches of atmospheric air are taken into the lungs with each inhalation, or say, about twenty cubic inches per minute, instead of three hundred and twenty, the normal quantity when a person breathes naturally, taking twenty cubic inches with each respiration and sixteen respirations per minute. It does not seem possible that atmospheric air would be more effective in favoring restoration than pure oxygen gas; neither is it safe to conclude that something hinders the diffusion of the gas, except, of course, the failure of the patient to breathe. So long as it is impossible to force the air into the lungs in such a manner as to secure absorption and proper distribution, just so long will the administration of oxygen be inefficient. If it be true that the loosely combined oxygen of the oxyhemoglobin is changed into methemoglobin, which is a more stable combination, it does not follow that the use of oxygen is contraindicated, or that the introduction of oxygen gas into the system will be without result. Neither should we conclude, because the gas is unsuccessfully applied through the ordinary channel—the lungs—that it cannot be otherwise successfully introduced.

The writer has been, for the past ten years, a close observer of the effects of oxygen in its various forms when employed to combat asphyxia and other low conditions of the system, and when all other methods had utterly failed, this remedy succeeded far beyond his most sanguine expectations. When the patient can be prevailed upon to breathe with any degree of regularity and sufficiently frequent, then the gas may be administered in the ordinary manner. When this is impossible, oxygen gas can accomplish but little; indeed, it is almost useless to persist in this way for any considerable length of time, unless it be for the psychic effect upon the spectators. *It should be given by enemata* by means of an ordinary bulb-syringe direct from the container. From three to five cubic inches can be introduced into the rectum with each compression of the bulb, and as there is no means for it to escape, it will readily find its way into the general circulation. From fifty to a hundred cubic inches of pure oxygen gas can be introduced into the rectum in the course of five minutes, and if this can be kept up for a short time, the results are most marvellous. The manufacturers of oxygen apparatus in this city make a tank especially adapted to administer the gas by enema, pressure being obtained by raising or lowering it.

It is the custom of the writer to keep on hand an oxygen generator, so that when there is a demand for the gas, it can be freshly prepared in a few minutes. With an apparatus similar to that employed for the Bergeron gas, oxygen can be introduced without difficulty, although a number of emergency cases have promptly recovered with the preliminary use of small doses of glonoin (trinitrin). A drop of a one per cent. solution can be placed upon the tongue and repeated at short intervals until such time as the oxygen can be prepared for rectal administration. Those who have doubts as to the absorption of oxygen by enema should make an experimental test, but they must bear in mind that while oxygen is stimulant in effect, it is not stimulant in the sense that we use the word when speaking of alcohol and other diffusible stimulants. It is a stimulant through its influence upon metabolism, and as such is always to be relied upon in low conditions of the system.

PETROLATUM.

According to the U. S. P., "1890," three different preparations of this product are described, namely, the *liquid*, *soft*, and *hard petrolatum.* Apparently all of them may contain more or less of the coloring matter of the crude oil, and the hard and soft, a percentage of the paraffin, or wax, which is an important constituent when the remedy is used locally, or given internally. While all physicians are more or less familiar with the petroleum preparations known as cosmoline and vaseline, few recognize that the petrolatum of the pharmacopeia is intended to supplant them, as they are all obtained from the crude petroleum by distillation. Both the soft and hard petroleum have had an extended use in the treatment of local affections, but it is intended in the present article to direct the attention of the medical profession to the valuable therapeutic properties of petrolatum when used internally. The writer has been engaged in the clinical investigation and study of this product for some years past, and now feels warranted in giving out some important points bearing upon its employment in different diseases in addition to his published utterances elsewhere.

For internal use a tolerably soft petrolatum is, on the whole, the best, because it embraces certain features which make it of special value when introduced into the alimentary canal. In the first place, it should be quite, or nearly, free from all coloring matter, as it must be apparent that its therapeutic virtues do not depend upon this peculiarity. In the second place, it should be given in the form of an emulsion, since this relieves it from all objectionable character, and the percentage of paraffin which it contains tends to allay irritation, besides preventing the absorption of poisonous products from the intestinal tract. In this latter particular, both the paraffin and the emulsionizing agents are of paramount importance, while the oil, that is, the liquid paraffin is an active solvent, and doubtless exerts a deleterious effect upon micro-organisms and their products; and at the same time it also enacts the role of a lubricant. Soft petrolatum is, therefore, antiseptic, detergent and laxative. But it is something more, since we have evidence that it is taken up by the lacteals, and like other oils and fats is probably deposited in the tissues, although it is doubtful if it will ever be shown to possess nutritive properties such as is possessed by cod-liver and other animal oils.

In the case of pulmonary and bronchial derangements an emulsion of soft petrolatum is an effective remedy and will show good results from the administration of the first dose. Acting upon the assumption that coughs and pulmonary affections were of a local character, much has been claimed for remedies directed to the local manifestations of the disease. It will, therefore, be rather a surprise to some to know that ordinary hard petrolatum, freely swallowed, will arrest a cold in its incipiency, and that the same treatment is frequently effective in many cases of pulmonary troubles—provided the patient can take it readily.

The objectionable character, however, can be easily overcome by having it prepared in the form of an emulsion. Any druggist will prepare it, either alone, or in combination with the hypophophites, by the use of acacia mucilage or tragacanth, and when a considerable quantity is ordered at one time, it will be well to add a small amount of oil of wintergreen to prevent fermentation. Patients will readily take a mixture of this kind containing thirty-three per cent. of petrolatum, and if the proper directions are given, they will like it. The patient should be instructed to add the usual dose—one to four teaspoonfuls of the emulsion—to a teacupful of hot water containing one teaspoonful of good whiskey. Taken after meals it improves digestion, regulates the bowels, causing increase of body-weight and a feeling of well-being.

It naturally follows that if this combination is effective for the relief of coughs and pulmonary troubles by reason of its influence upon the digestive tract, that it will likewise be of service in the treatment of various intestinal disorders, and this is true. Being antiseptic, detergent and laxative, its therapeutic properties as an intestinal remedy are of a high order. It not only relieves many of these troubles, even when of long standing, but it has the effect of regulating the bowels and thus prevents the return of the abnormal conditions which contributed to produce the disease in the beginning. Now that the season of the year is approaching when remedies of this character will be in demand, it is hoped our readers will test clinically the virtues of this product and send reports covering the results of treatment. One of the best things about petrolatum when employed internally is, that it precludes the use of a large number of remedies that are commonly used for the relief of symptoms, and it does this through its influence upon the causes that produce the disease. In addition to the diseases mentioned, petrolatum will be found efficient in a long list of disorders that are naturally associated with, or dependent upon an unhealthy condition of the digestive apparatus, and when its virtues become better known we shall prize less the remedies that merely relieve symptoms, but keep the patient sick for weeks and months at a time when he can ill afford it.

THE TREATMENT OF CARBUNCLE.

Judging from the frequent reports of deaths from carbuncle, especially among men of prominence throughout the country, it must be apparent to the most casual observer that our methods are radically wrong, or the science of therapeutics is sadly at fault. It is but reasonable to conclude that comparatively few of the fatal cases are reported through the medium of current literature, and as the writer has had quite an extended experience with this class of cases, the present seems to be an opportune moment for bringing the subject to the attention of the profession.

Heretofore, or previous to the introduction of antisepsis along with the knowledge that we now possess in regard to the influence of micro-organisms in the causation of this disorder, the treatment by poultices was almost invariably attended with unfortunate results, simply because the methods adopted were those best calculated to promote the rapid growth and multiplication of the mephitic microbes. Given warmth and a moist soil, nothing could be more favorable to their increase in the affected area. The dry dressing has something to recommend it; but local treatment without internal medication is of little avail, owing to the depressed condition of the vital powers. And practically the same is true concerning the use of antiseptics, because we must admit that while the carbuncle is apparently a local disease, it must depend for its production upon an unhealthy condition of the general system. Admitting the correctness of the premises then, what course shall we pursue in the treatment of these unfortunate cases?

In a personal communication from Dr. E. T. Sabal, of Jacksonville, Florida, who has also had extended opportunities for observation in the treatment of carbuncle in the Southern states, he says that he has met with uniform success by means of a very simple method, which is as follows: At the first visit, the affected area is thoroughly painted with equal parts of pure glycerin and crystallized carbolic acid; later, to ease the pain, an opium cerate, containing fifteen grains to the ounce, is applied over the entire inflamed area, cutting being deferred until there is evidence of fluctuation. The use of the lance is rarely required, for the reason that the glycerin and carbolic acid, being both distillation products, are practically alcohols, and until brought into contact with water, no escharotic effects are produced. There is this, however, to explain the *modus operandi*; namely, the small amount of moisture thrown off by the skin serves the purpose, so that the caustic effects are slowly produced, and the analgesic effects of the carbolic acid are sufficient to prevent the appearance or sensation of pain. The pressure from below, with the caustic effects of the local medicament, are thus sufficient to cause the skin to gradually give way, and the carbuncle seems to break spontaneously. Internally he administers small doses of the tincture of the chloride of iron in combination with small doses of mercury biniodide, but he says recent experience with calcium sulphide warrants the belief that it would also prove an acceptable and efficient adjuvant to the other treatment.

In addition to the method of treatment outlined above, we must bear in mind that occasionally, if not generally, it will be necessary to administer some medicament besides nutritious diet for the purpose of toning up the vasomotor system —taking up the slack as it were—and it is also important that the functions of elimination should be maintained in a normal manner. If the bowels are allowed to become sluggish, we shall have, in addition to the disease, the presence of auto-infection as a complication, and it is doubtless here that the failures occur in many of the cases which prove fatal. The physician loses sight of the general condition of the patient, and exhausts his energies in treating the disease, when, in fact, the disease would cure itself, provided the complications were removed without too much depression of the patient's vitality, since it is evident that the disorder causes a serious drain upon the system. Small doses of arsenic, with a little strychnine sulphate or fractional doses of nux vomica, at short intervals, will prove valuable as a stimulant and vasomotor tonic. Potassium iodide with or without one or more of the vegetable alteratives is indicated in the later stages. Mercurials in small doses are helpful when the emunctories are indolent, while calcium sulphide is always effective in certain directions where we have to deal with active inflammatory symptoms. Syrup of hydriodic acid will often serve us well, but it must be absolutely free from the presence of iodine, or it will rekindle the flame and cause a relapse, as the writer has found to his sorrow. Locally the strictest antiseptic measures should be followed throughout; a fifty per cent. solution of the ordinary hydrogen dioxide (15 volume solution), or some similar non-irritant oxidizer, will usually prove satisfactory, although a dry dressing—boric acid with ten per cent. iodoform—is applied between the intervals of dressing.

THE PAN-AMERICAN MEDICAL CONGRESS.[*]

ABSTRACTS FROM THE HAND-BOOK.

The Absorption of Iron in the Animal Body.

By A. B. Macallum, M. D.,
Professor of Physiology, University of Toronto.

The author's observations on the distribution of iron in the animal and vegetable cell have resulted in determining that the chromatin of every species of cell is an iron-holding compound, and that this substance gives origin to the hemoglobin in the animal body. It follows from this that the iron of inorganic preparations in the food, if it is assimilated at all, must go directly to the formation, not of hemoglobin, but of chromatin—a conclusion which necessitates a revision of the commonly accepted views as to the physiological relations of iron, and which at the same time suggests two interdependent questions: (1) Is chromatin formed in the animal body, or is it formed in vegetable organisms only? (2) What is the true explanation of the beneficial effects of the administration of iron salts?

In an attempt to answer these questions, various compounds of iron have been administered to animals (guinea-pig, rabbit) in order to determine by micro-chemical and histological methods their action in the intestine. The investigation has yielded results which may be summarized thus:

(1.) The chloride, phosphate, and sulphate of iron, and certain organic preparations of iron, are absorbed by the epithelial cells of the villi and by the siderophilous cells surrounding the lacteal vessels.

(2.) When given in large doses, certain preparations of iron have, upon the absorbing elements, especially the siderophilous cells, an effect similar to chemotaxis.

(3.) The absorption of iron compounds occurs chiefly in the upper and middle portions of the small intestine.

The beneficial effects of the administration of iron in anemia may, in large part, be explained on the view that iron salts increase the absorptive activity of the intestinal mucosa. Other investigations on the absorption of chromatin tend to support this view, and to indicate that inorganic and albuminate compounds of iron are not assimilated in the animal body, or, in other words, iron-holding nucleo-albumins are products of vegetable metabolism only.

The bearings of these observations on the pathology of simple anemia and chlorosis and on the subject of nutrition is discussed at length in the original paper.

The Number of the Red Globules.

By Dr. Jose G. Hernandez,
Professor de la Universidad de Caracas.

The classical works on physiology fail to mention the influence of latitude upon the number of red corpuscles. The author has endeavored to study this question in the tropics. He started to find the physiological mean of the number of red corpuscles in the inhabitants of Caracas. The latitude of the city and elevation above sea level are given. Healthy individuals, medical students between the ages of sixteen and twenty years, were chosen. Twenty-five counts were made with the apparatus of Nachet. The mean obtained per cubic millimetre was of 3,247,000. The minimum was 1,900,000, and the maximum 3,840,000.

---

[*] Held in Washington, D. C., September 5th to 8th, 1893.

The amount of urea secreted in twenty-four hours was also investigated in six cases, obtaining a mean of twenty-one grams, with extremes of fifteen and twenty-five grams.

This olygocythemia is explained by the theory that the function of the red blood cells is respiratory, and that the process of oxidation is necessary to keep up the bodily temperature, a function that must be less active where the surrounding temperature is uniformly high. The diminished oxidation of the tissues results in a diminished secretion of urea.

The statement, often repeated, that the climate of the tropics is a producer of anemia, is thus confirmed.

FUNCTIONAL DISTURBANCES CAUSED BY HEAT.

By Dr. J. B. de Lacerda, Rio Janeiro, Brazil.

Experiments commenced some years ago with the lamented Dr. Couty. The experiments of Cl. Bernard were too artificial. We have not made use of stoves, but have been in a position to employ natural heat. In Rio, during the summer, we often have temperatures varying between 30° and 36° C. The action of the heat is increased by the hygrometric saturation and the prevailing calm of the air.

Under these circumstances there is a considerable exhaustion of muscular energy; the nerve energy is in abeyance; the secretions of the skin are enormously increased; the kidneys are slow, and the brain slumbers.

Experimenting on the lower animals between the temperatures of 30° and 35° C., we have always found the arterial tension very low, varying between 12 and 15 c.c. of mercury, while in winter it reached 19 and 21. We have thought that the fall was due to two factors, namely, a dilatation of the vessels, and cardiac weakness.

The nerves were found not to respond after a few electrical excitations unless a sufficient time of rest was allowed.

Dogs exposed directly to the sun, if kept immovable, perish in fifty minutes. At first there are signs of excitation, cardiac and respiratory acceleration, contracted pupils, salivation. This condition lasted about fifteen minutes, and was followed by cardiac weakness, dilated pupils, dryness of the mouth, and arrest of respiration at times. When the rectal temperature reached 44° C., death was imminent, and was the result of arrest of respiration, the heart continuing to beat for a few seconds.

Immediately after death we could demonstrate the loss of muscular contractility, at least in the respiratory muscles and the heart. The blood was dark, rather fluid. There were hemorrhages into the endocardium and in the lungs. There were minute petechiæ of the skin, and at times considerable suffusion.

The circulatory changes above mentioned must bring about, as secondary results, a slowing of the processes of absorption and of metabolism.

It is easy to perceive how these secondary conditions may concur to aggravate certain pathological states in the warm climates, and how they may give rise to a slow absorption of medicinal agents.

CHANGES IN GANGLION CELLS FROM BIRTH TO DEATH FROM OLD AGE.

By C. F. Hodge, Ph. D.,

Assistant Professor Physiology and Neurology, Clark University.

In previous experiments, where it has been necessary to compare ganglion cells of one animal with those of another, special care has been taken to use animals of as nearly the same age as possible. This has been done under the supposition that age might materially influence the appearance of the cells.

Certain histological features have been observed to occur quite frequently in nerve-tissue taken from the aged. The most common of these is sclerosis. For the ganglion cell itself, increase of pigment has also been noted. Both of these characteristics, together with the numerous forms of degeneration which have been described for nerve tissue, are often met with in various pathological conditions. It is with special reference to age changes within the nerve-cell itself that the present research is begun.

The material which has been of most service, so far, is the first cervical ganglia of a fetus of full term, male, and of a man dying of old age at ninety-two. The death of the fetus was due to an accident during birth; that of the man was caused by gradual decay accompanying old age, and not complicated by disease of any sort. The ganglia were hardened, one of each pair, in osmic acid and corrosive sublimate, embedded side by side in paraffin, cut together and stained together on the slide. We thus have, side by side, and prepared in the same way, similar cells at birth and at ninety-two years of age. And the question now is—What changes have the ninety-two years of life and activity wrought in the cells?

The first difference to be noted between the ganglia is one of size, the ganglion of the old man being, by measurement, 105 times larger in bulk than that of the fetus. This increase in size is seen from the sections to be due chiefly to sclerosis, the old ganglion consisting practically of a knot of connective tissue, in which are sparsely scattered small groups of nerve-cells and fibres.

In the cells themselves the most striking difference is the almost complete absence of nucleoli from the ganglion cells of the old man. Coupled with this is the extremely shrunken condition of the nuclei. The cells in this instance are largely filled with pigment and fat, both substances showing black in osmic acid specimens, the pigment being yellow and the fatty masses being represented by large vacuoles in sections by the corrosive sublimate method.

Careful measurements and estimates of pigment are given in tables. Similar changes are not found in the brain cells.

A TABULAR VIEW OF THE PATHOLOGICAL ANATOMY OF YELLOW FEVER AND MALARIAL FEVER.

By JOSEPH JONES, M. D., New Orleans, La.

YELLOW FEVER.	MALARIAL FEVER.
Exterior.	*Exterior.*
Cerebro-spinal nervous system.	Cerebro-spinal nervous.
Sympathetic nervous system.	Sympathetic nervous system.
Heart. Yellow and softened.	Heart. Normal, no change in color or structure.
State of fatty degeneration.	No fatty degeneration.
Lungs. Dependent portions congested, otherwise normal.	Lungs. Dependent portions congested, otherwise healthy.
Stomach. Congested and filled with black vomit.	Stomach. No uniform condition.
Intestines. Congested and filled with gas.	Intestines. No uniform condition.
Liver, yellow color. Liver cells and liver structure generally filled with oil globules.	Liver, slate color on exterior and bronze within. The portal capillaries filled with black pigmentary and melanotic matter.
Gall-bladder. Small, contracted. Contains about 300 grains of yellow bile.	Gall-bladder, distended with 1500 grains of dark greenish, black bile.
Spleen. Slightly enlarged and softened.	Spleen, more or less enlarged. Sometimes attains a size larger than that of the liver, weighing several pounds.
Supra-renal bodies.	Supra-renal bodies.
Fatty degeneration.	No change.
Kidneys. Brownish yellow and softened, disquamation of excretory cells of the tubuli-uriniferi.	Kidneys. Generally normal, sometimes slate colored in patches. In malarial hematuria bright red from effused blood.
Urinary bladder contains albuminous urine with excretory cells and granular casts.	Urinary bladder. Normal, with relatively abundant excretions.

A Microscopical Study of the Living Nerve-Cell During Stimulation.

By C. F. Hodge, Ph. D.,
Assistant Professor, Physiology and Neurology, Clark University.

Up to the present series of experiments my work upon the nerve-cell has been confined to observing the changes due to electrical stimulation or to daily fatigue in the cell after it has undergone the usual methods of preparation for the microscope. From the beginning it has been my desire to study the nerve-cell continuously during the process of fatigue.

METHOD.

Of a pair of spinal or sympathetic ganglia quickly excised from a freshly pithed frog, the right is placed in a drop of salt solution, upon one of the "stimulating stag es" to be presently described; the left upon the other. The "stimulating stages" are made by looping up the two fine platinum wires, which serve as tips to electrodes of an ordinary Du Bois-Reymond coil, through needle-holes in a thin piece of glass, so that about two millimetres of each wire is exposed upon the upper surface of the glass, and the wires lie about two millimetres apart. This glass plate is mounted over a hole in a hard rubber disc of such size as to be conveniently clipped to the stage of a microscope. The ganglia are arranged so that the nerve of each lies on the electrodes and, the specimens being placed each under a microscope, a cell, or group of cells in each, which can be plainly seen, is found and brought to the centre of the field. Cells as near alike as possible are of course sought out. Now with the microscopes side by side, with similar nerve-cells of the same animal under each, electrical stimulation is applied to one, while the other remains at rest; and both are observed, measured, and drawn (with the camera) from time to time. A flow of sterilized salt solution was maintained under the cover-slips by means of capillary glass syphons supplied from the same reservoir. Stimulation was interrupted, fifteen seconds' work alternating with forty-five seconds' rest, the primary current being made and broken by a "Lombard clock interrupter." Four Daniels' cells, supplying current of .5 ampere were used throughout. At the end of desired time both control and stimulated ganglia were hardened in osmic acid and teased in glycerin for further study.

RESULTS.

It has been planned to have the experiments fall into two series, a summer and a winter series. The winter series, consisting of ten experiments, was completed between November 24 and December 24, 1892. Of the summer series four experiments have been completed at the writing of this abstract. It is intended to add about fourteen more during the summer.

The chief result of the experiments so far is, that the nucleus shrinks when stimulated under these conditions more rapidly than when the ganglion remains in the animal's body. This decrease in size is rapid at first, then slower and more rapid again, as observed in a previous set of experiments; but the slowing up at no time amounts to a stand-still or to partial recovery. The controls shrink a very little, 3 to 8 per cent., as compared to 60 to 73.7 per cent. in the nuclei of stimulated ganglia. Granules and oil droplets have been seen to disappear from the cell-protoplasm during stimulation.

Stimulation has been continued as long as six days and nights, but active changes cease to be visible after the first five to six hours. With too severe stimulation the cells may show little or no change. The most definite results were obtained with the secondary of a Krüger coil (10305 u.) at from 10 to 13 cm. With the secondary coil at 0, no change in the cells was visible. Motile protozoa, vorticella and paramœcium, were almost instantly killed with this strength of current; whereas they were apparently uninjured when the secondary coil was removed to 10 cm.

Current Literature.

SYRUPUS ACIDI HYDRIODICI.

Since the introduction of the syrup of hydriodic acid into our pharmacopeia as an official remedy, much discussion has followed, both favorable and unfavorable to its use. It has been my privilege to use the syrup of hydriodic acid in a large number of cases in private practice, with such uniform success that it may not be amiss to detail some of the results and conclusions reached.

Preparation.—As stated by all reliable authors, syrup of hydriodic acid is not absolutely stable, and every preparation will undergo slight changes in course of time. A *reliable* preparation should be perfectly clear, or of a very slightly tinted straw-color; sweet to the taste and not irritating; without acrid odor; absence of iodine reaction with starch; absence of fermentation; syrupy in consistence, and palatable to the taste. Dark-brown preparations are worthless, unsatisfactory, irritating, nauseating and dangerous, and must be condemned at once. Fermentation destroys its efficiency by liberating free iodine and hydriodic acid, which is a gas. Any preparation which has stood for a length of time exposed to the air, heat, or strong light should not be used. Small, dark bottles, hermetically sealed, are preferable to large ones, unless the syrup is used within a short time—this is especially the case in hot weather. It should not be dispensed in large quantities, and is best given in its pure state (to be mixed with water when taken) rather than in combination. Combinations are liable to undergo changes more rapidly than the simple drug, and are to be avoided. There are a number of reliable preparations on the market, and, if the above-mentioned points are followed, there will be no difficulty in selecting them.

A large number of failures with syrup of hydriodic acid have been traced by the author to the use of improper preparations, or to its administration where it was not indicated. This suggests the questions: What are the advantages of syrup of hydriodic acid? and, What are the indications for its use?

It is palatable; does not irritate the stomach; can be given in small bulk; is not objectionable to children, and does not contain objectionable materials. Iodide of potassium makes a nauseous dose, large in bulk, and hard to administer to children. Potash also irritates the kidneys. Hydriodic acid will produce the same physiological effects as any other preparation of iodine, and will cause coryza, ptyalism, skin eruptions and anemia, if pushed in amount.

Indications.—Tertiary syphilis in all its forms; strumous diathesis and its various manifestations; rheumatism; eczema,—in fact, it is to be used internally as any other iodide.

W. Blair Stewart, A. M., M. D.

N. Y. Medical Journal, Aug. 26, 1893.

TRIONAL AS A HYPNOTIC.

I have, since last December, given trional 100 times, with success in 90. All the patients were, or had been, opium, chloral, or cocaine habitués—certain conditions of which test strongly the power of any hypnotic.

The drug was given dry on the tongue. The initial doses were full—40 grains for males, 30 grains for females—and were usually given at 7 P. M. I have known sleep to come on in half an hour after the administration of the drug, but in most cases it was delayed, as with sulfonal, for three or four hours. The sleep was sound and refreshing, and lasted from 4 to 11 hours.

The maximum amount of slumber occurred in a morphine-cocaine case of some years' standing, kindly brought to me by Dr. Hedges, house-physican of the Presbyterian Hospital. In this case trional acted surprisingly well, the first dose of 40 grains being followed by 11 hours of umber; other doses, of from 30 to 40 rains, giving 8, 9, and 10 hours of sleep. n five weeks the man left, with normal leep and free from drugs.

In a case of ten years' chloral-taking, eaching a maximum of 120 grains nightly, ional served an admirable purpose, no hloral being given after the first night. he initial dose was 40 grains, which was radually reduced, during three weeks, to 5 grains, when all hypnotics—save a sychic soporific—were withdrawn. Five veeks later the man was dismissed, cured.

In a twelve years' case of morphinism, otable from the fact that the woman, on oming to me, was taking only $^9/_{10}$ of a rain subcutaneously daily—a condition uite exceptional and largely due to the lrug not being self-given—trional, in loses of from 20 to 30 grains, was the nly soporific used. It worked well. The ady recovered.

In several other cases the drug respond-d satisfactorily. No ill effect on pulse r breathing was observed. In one man nd in two women vertigo was noted, nd in two male morphine-cocaine cases he gait was decidedly "groggy" on the lay after the administration. In one voman a dose of 30 grains seemed to ause a sharp but short attack of gastric ramp, which subsided without treatment nd did not recur.

In another case, a morphine habitué, a lose of 40 grains caused severe epigastric ain and repeated vomiting. Another rial gave a like result. This case was not a fair test, as the man was more largely urdened with idiosyncrasies than anyone ever under my care—chloral, sulfonal, nd paraldehyde each causing gastrontestinal derangement, without sleep, which was finally secured by two doses of 5 and 10 grains of extract of cannabis ndica at an interval of two hours.

In several cases the sedative and hypnotic effect was prolonged to the day fter the administration, and in some till he second day—the drug in this respect esembling sulfonal. The prolonged sedative effect was marked in one woman, who slept all night after a dose of 30 grains, and was quite free from nervous unrest on the following day, the symptoms returning when the trional was omitted.

In another more recent case of morphinism the patient had 8 hours of unbroken sleep after taking 30 grains; he felt calm on the following day, and slept well again at night without the drug. This patient, a physician, declared that the effect was more profound than he had ever experienced from sulfonal, chloral, or paraldehyde. He also asserted that a marked psychic effect was produced, closely akin to that caused by morphine—so much so as to suggest a decided risk of tolerance if the drug were long continued.

In all cases of failure with trional that I have noted, other than the one case of gastro-intestinal disorder, there is reason to think it mainly due to the smallness of the dose.

In a case of morphine-cocaine inebriety careful comparative observations were made as to the effects of equal doses of trional and sulfonal. The result was always in favor of the former.

There is a consensus of opinion as to the hypnotic power of sulfonal in the early abstinence-time of narcotic inebriety—a time when chloral and paraldehyde fail to do good, but I think sulfonal is surpassed in this condition by trional. It has been along this line entirely, with one exception, that my trials with trional have been made, and I am bound to say that I regard it of special and superior value in this condition. The agrypnia of this period is usually so profound that full doses of any soporific are essential, and I commend one maximum rather than two medium doses.

In simple insomnia, doses of from 20 to 30 grains will suffice. In marked cases from 30 to 40 grains are best. Trionalism is a possibility.

I have found the effect of trional more certain, pronounced, and prolonged than that of sulfonal, and my experience, with that of foreign physicians, warrants me in thinking it the most powerful hypnotic now at our command.

J. B. Mattison, M.D.

The Medical News, May 6, 1893.

Book Notices.

Manual of Physical Diagnosis for the Use of Students and Physicians. By James Tyson, M. D., Professor of Clinical Medicine in the University of Pennsylvania, etc. Second edition; revised and enlarged. Cloth, 12 mo., pp. 241. Philadelphia: P. Blakiston, Son & Co., 1893.

Always interesting, reliable and practical, Dr. Tyson has made a number of improvements in the present edition of his work which will strongly commend it to the attention of both students and practising physicians. The text is concise, the instructions exact, and, where required, the illustrations are complemental to the teachings, making a very complete manual in small compass. This department of teaching is far behind in most institutions, and we, therefore, bespeak for the work a wide circulation. The suggestion is put forward that it might be of service if the companies engaged in life insurance, would place a copy of the book in the hands of each of their examiners with instructions to thoroughly master its contents.

Not the least important section of the work is the "Appendix," containing information upon a number of topics outside of physical diagnosis, such as the examination of the blood, that for the more important bacilli, the chemical examination of the stomach contents, and directions are also given for making an autopsy. A comprehensive index enables the student to find the different subjects readily; and the mechanical execution is all that could be desired.

Essentials of Minor Surgery, Bandaging and Venereal Diseases. Arranged in the form of question and answer. Prepared especially for students of medicine. By Edward Martin, A. M., M. D., Clinical Professor of Genito-urinary Diseases, University of Pennsylvania, etc. Second edition; revised and enlarged. Seventy-eight illustrations. Cloth, 12 mo., pp. 166. Philadelphia: W. B. Saunders, 1893. (Price, $1.00, less discount.)

Dr. Martin has given the student an acceptable "*pony*," and it will be read with interest even after graduation. No doubt, it will prove a "handy" little book for reference when the recent graduate is confronted with the emergency treatment of a complicated fracture, since these accidents are not of frequent occurrence. Some of the old practitioners would doubtless find it valuable in refreshing their minds in regard to numerous little details which have materially changed since they began practice.

Perhaps it was not the author's intention to describe fully the benefits to be derived from counter-irritation; had he studied this subject from the modern standpoint, the probabilities are that more caution would have been advised in relation to the various methods recommended. Those of our readers who read the contribution by Prof. Schulz in our last issue, have already seen that our conception of revulsion-therapy must be re-studied, if we would place this matter on a foundation corresponding with that upon which modern medicine rests. Nevertheless, the work is just such an one as will meet with success as a class-book, to be elaborated later by notes from lectures.

Man and His Maladies, or The Way to Health. A popular hand-book of physiology and domestic medicine in accordance with the advance in medical science. By A. E. Bridger, B. A., M. D., etc. Cloth, 12mo., pp. 593. New York: Harper & Brother.

The work before us is certainly one well calculated to be of benefit to the intelligent lay-reader, because it takes a rational view of the treatment of disease in general. It is divided into two parts, viz.: The Science of Medicine and the Art of Healing, and, judging from the views expressed in Part I., it is evident that the writer had almost stumbled upon the notion of cellular-therapy. Says Dr. Bridger, "Human life begins in a germ-cell, which is an intricate compound of six elements. In its intricacy is to be found the source of its only energy, which, though small, is in conjunction (under certain conditions) with that derived from soluble albuminous food, sufficient to account for the phenomena of life and growth. The colloid form of the germ-cell and its descendants renders them specially susceptible to the influence of matter and energy in their environment. The environment, plus inherited peculiarities of structure in the germ-cell, determine the form, and thus the nature and character of man."

In the study of the art of healing no little attention is given to the food question, and it is this feature which we regard as of particular merit. The work is the result of careful and extended inquiry and research, and withal, deep thought, and will readily commend itself to the better class of lay-readers as well as physicians.

LEONARD'S PHYSICIAN'S POCKET-DAY-BOOK. Bound in Red Morocco, with Flap, Pocket and Pencil Loop, Price Post-paid, $1.00. Published annually by the ILLUSTRATED MEDICAL JOURNAL Co., Detroit, Mich.

This day-book is in its 16th year of publication. It is good for thirteen months from the first of any month that it may be begun, and accommodates charges for fifty patients daily for that time, besides having cash department, and complete obstetric records. There is space for the diagnosis of each case, or for brief records of the treatment adopted, following each name-space. Name of each patient needs to be written but three times in a month. It has the usual printed matter, such as: Dose List; Poisons and Antidotes; Urinary Tests; Exanthematicæ; Disinfectants; Weights and Measures. The book is 7½ inches long and 3½ inches wide; it is bound in flexible covers, and weighs but five ounces, so that it is easily carried in the pocket.

CONNECTICUT MEDICAL DIRECTORY. Published by the DANBURY MEDICAL PRINTING Co., Danbury, Conn. 1893.

A neat, paper-cover pamphlet of 150 pages, giving very comprehensive information on medical matters in the Nutmeg State. The contents include the Laws of the State on medical and allied matters; officers and members of Associations, Hospitals, etc.; and a complete directory of physicians, druggists, dentists and trained nurses.

ANNOUNCEMENTS.

AMERICAN TEXT-BOOK OF GYNECOLOGY.—Mr. W. B. Saunders, publisher, of Philadelphia, Pa., announces this work as ready for early issue. It is the joint work of Drs. Howard Kelly, Pryor, Byford, Baldy, Tuttle, and others who stand before the profession for all that is progressive in gynecology. The work will contain operations not before described in any other book—notably ablation of the fibroid uterus. It is designed as a profusely illustrated reference book for the practitioner, and every practical detail of treatment is precisely stated.

BAILEY & FAIRCHILD, of New York, announce the early publication of a work entitled "Syphilis in the Innocent," (Syphilis Insontium), Clinically and Historically Considered, with a plan for the Legal Control of the Disease by L. Duncan Dulkley, A.M., M.D., Professor of Dermatology in the New York Post Graduate Medical School, and Physician to the Skin and Cancer Hospital. This book of about 350 pages is the result of years of work in completing and enlarging an original essay to which was awarded the Alvarenga Prize of the College of Physicians of Philadelphia in 1891.

Miscellany.

A HOSPITAL FOR EPILEPTICS.—Ohio has made a movement in advance of her sister States in building a hospital at Gallipolis for the special care of epileptics. The hospital was opened November 1. Almshouses and hospitals for the insane are not proper places for epileptic patients. Epileptics are often of sound mind and of sufficient bodily ability to support themselves if afforded the opportunity under suitable conditions. Experiments made in Germany and England show that colonies of these unfortunate persons, once established, need but little assistance from the public purse.—*Phila. Record.*

THE NEW YORK PASTEUR INSTITUTE.—The new building of the New York Pasteur Institute was opened early in October. It is five stories in height, and is situated just opposite Central Park at Ninety-seventh street.

Dr. Paul Gibier is its medical director. A large gathering, mostly of physicians, attended the opening ceremonies. It included Vicomte P. d'Abzac, Consul-General of France, and the Comte de la Boissiere. The address of welcome was delivered by Prof. Ogden R. Doremus.

The building is equipped with laboratories for experimental medicine and hygiene, containing the most recent forms of scientific apparatus and a small menagerie of dogs, rabbits, guinea pigs, white rats, and chickens.

To Filter Water Upward.—An Italian inventor in New York has just devised a water-filter, the principle of which embodies a theory of his own, that water is best filtered upward instead of from the bottom. The inventor has had built a large can which has a conical-shaped bottom. Into this is poured impure water. A floating filter is put into this vessel, which has a mole-skin covered bottom.

The water is filtered upward by suction through the mole-skin and passes down through a pipe into a catch basin. The floating filter settles down into the bottom of the can as the water is exhausted. All impurities settle into the cone, where they are drawn off through a tap.

The advantage of filtering water upward rather than downward is obvious. When water is filtered downward it has to be strained through the accumulation of impurities. In filtering upward the impurities fall to the bottom of the vessel.

The inventor claims that his scheme in applicable to large water plants.

A New Filter-Asbestos Porcelain.—Filtering is certainly superior to all the other means of purifying water, says a scientific writer in the European edition of the *New York Herald*. He continues: Experiments have been made in the different laboratories with a new species of filter. The model is the same as that of the Chamberland system, but the porcelain is of a different nature, the new kind being prepared from asbestos, which is both more homogeneous and has much smaller pores than ordinary porcelain. MM. Durand-Fardel and Bordas have tested the new filter in one of the Paris laboratories, and have found that water extremely rich in microbes is absolutely sterilized by being passed through asbestos porcelain. They also found that bouillon cultures of the germ of typhoid fever, or of anthrax, lose all their microbes by going through the new filter, and that the liquid that contained the anthrax bacilli may be inoculated on guinea pigs with impunity. Asbestos porcelain does not have to be cleaned as often as the other. as after six weeks of constant use it stops the microbes as well as on the first day.

De Baun's Insufflator.—Dr. De Baun, of the New Jersey State Board of Medical Examiners, has made a machine to obtain artificial respiration, which he calls an insufflator.

The apparatus is as simple as it is ingenious. It consist of a long rubber tube, near one end of which is a piece of soft rubber with which to cover the mouth and nose. At the other end are two rubber bulbs. After the tube has been inserted between the teeth, and the mouth and nose covered tightly, the lower bulb is compressed, forcing air into the second bulb, which acts as a reservoir. This second bulb is much more elastic than the other and maintains a steady pressure of air through the tube. It is covered with loose netting, which acts as a sort of safety valve against over-pressure. The tube is fitted with a stop-cock that may be used to lend force to the first few respirations.

A few compressions of the lower bulb are sufficient to fill the lungs. Then the pressure on mouth and nose is relaxed, and the lungs are emptied by the natural elasticity of the muscles of the chest.

It has been devised for persons who have been brought apparently to death's door by asphyxiation from gas or water. In the latter case the lungs must first be emptied. The apparatus weighs but a few ounces. It is not patented.

Microbes and Arrow Poison.—A French naval surgeon, Dr. Le Dantec, has examined the arrow poison used by the natives of the New Hebrides. The results of his investigation have been published in the "Annales del'Institut Pasteur." The new Hebrideans employ for this purpose earth from marshy places; it contains both the septic vibrio and the tetanus bacillus. From experiments on animals, it was found that when the poison was old, they died from tetanus; when fresh, from septicæmia. In the case of a man, tetanus has always been observed. The practical outcome of all this is: wounds inflicted by poisoned arrows should be treated with every antisceptic precaution, and freely enlarged, if necessary, so as to remove all foreign bodies. The observations of Dr. Le Dantec are against the equine theory of tetanus, for there never have been horses in the New Hebrides. The author also draws attention to the fact that the Pacific Island savages were the first, and probably the only ones, to make use of "microbes in the art of war."

Artificial Air-Supply for Hospitals.—Dr. John Brady, the lecturer on electricity, at Spring Garden Institute, Philadelphia, says that the recent discoveries of a London scientist (Professor Dewar), whereby air can be liquefied and solidified, will make submarine navigation a commercial success. At present it is a scientific success, but the expense is so great that corporations for profit will not touch it, and only powerful governments are able to indulge in the expense of building and operating submarine craft. Under the new discovery a large amount of solidified air can be stowed away and used as required for the free ventilation of the submerged vessel. As the atmosphere becomes unfit for further use by the passengers, it can be allowed to escape and a new supply at once turned on—fresh air on tap, as it were. Dr. Brady says that as the effects of storms are felt only to depths of from 30 to 40 feet below the surface of the sea, ocean travel by the submerged method will be much more safe and besides will do away with sea-sickness.

There is no reason why hospitals and sick-rooms should not be supplied in the same manner.

To Control Hay Fever.—A foreign scientist has observed that in the Winter a coryza was usually accompanied with hot ears, which regained their normal temperature when the discharge from the nose was established. He determined to try a reversed order of effect on the hay fever in the Summer, and began accordingly to rub his ears until they became red and hot.

It is now the third year that he was been able to lead an endurable existence during the hay fever season. As soon as the least sensation of fulness in the nose appears, there is recognized a certain amount of pallor in the ears. A thorough rubbing of the ears, at times even to contusion, has always succeeded in freeing the nasal mucous membrane from its congestion. The rubbing, however. must be thorough, and repeated as often as the least symptom of congestion returns to the nose.—*American Druggist & Pharm. Record*, September, 1893.

The writer has tested the virtues of this remedy, and finds that it is of temporary benefit only. But it furnishes an excellent illustration of "*revulsion-therapy*," as outlined by Prof. Schulz in our last number, and may be of service in its further development.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, DECEMBER 15th, 1893. No. 6.

Original Articles.

ACTIONS OF DRUGS ON THE INTESTINES.

By W. C. CALDWELL, M.D.,
Professor of Materia Medica, and Director Pharmacological Laboratory, College of Physicians and Surgeons, Chicago.

Continued from page 136.

Absorption may be diminished:

(1) By increasing peristalsis; of course in this case it is not diminished absorption but increased peristalsis that causes the evacuation of the bowels. The contents of the small intestine are liquid, and if rapidly carried on into the large intestine, and from there on through the rectum, there will not be time for absorption; so in this way increasing peristalsis may produce liquid stools.

(2) By the presence in the intestinal liquids of substances with high osmotic equivalents; that is, substances that have such great affinity for the water that they keep the water with them, and are so constituted themselves that they do not readily pass from the intestinal canal into the blood; hence, the substances and the water in the canal are not absorbed, but pass onward and outward; sulphate of magnesia is the most powerful of these. Nearly all the water that is drunk with the salt, as well as that which it meets on its way, remains unabsorbed, and helps to increase the watery stool. The other salts of magnesia and soda act in a similar way.

(3) By acting upon the columnar epithelium of the glands. Leubuscher has made a number of experiments on intestinal absorption, though not for the purpose of studying cathartics, but to determine the means of increasing the absorption of drugs and the conditions that lessen their absorption. However, it may be useful to mention some of his conclusions. He found that when the epithelium is injured, as after injecting concentrated mineral acids into a ligatured loop of intestine and then washing it out, that absorption is much slower than from the healthy epithelium.

(4) By hindering the circulation in the intestinal mucous membrane. Leubuscher found that ligating the mesenteric veins greatly diminished absorption. He also in other cases ligated the arteries. He found that alcohol in half to two per cent. solution increased the absorption of a drug; but stronger solutions lessened absorption. Potassium iodide in a very dilute alcoholic solution was more rapidly absorbed than from a concentrated solution; sodium chloride in small quantities increased absorption. Quinine and morphine in dilute solution diminished absorption; morphine also, when given hypodermatically, diminished absorption. Nothing is known about the action of the nervous system on absorption.

CLASSIFICATION OF CATHARTICS BASED ON THEIR VARIOUS ACTIONS.

Cathartics not only differ in their mode of acting on the intestinal tract, but also in their other actions; hence there are a number of different ways of classifying them, all of which have more or less clinical importance.

I.—*Classification of drugs according to their manner of reaching the intestinal mechanism.*

(1) *By first contact.* Nearly all the drugs used as cathartics act in this way; that is, they are swallowed, come in contact with

the mucous membrane and act as cathartics before they are absorbed.

(2) *By circulation contact*; that is, they act after entering the circulation and are carried to the tissues. Such drugs as strychnine, muscarine, physostigmine, atropine, morphine, and pilocarpine act in this way.

(3) *By excretion contact;* that is, they are excreted by the mucous membrane of the intestinal tract, and thus by their irritation cause catharsis. A great many cathartics, when given subcutaneously, or applied to an open wound, or rubbed into the skin, act this way. The following drugs probably act thus when given hypodermatically: podophyllin, rhubarb, aloes, senna, colocynth, castor oil, croton oil, and elaterium. Of course for clinical purposes these are never given hypodermatically.

II.—*Classification of drugs according to certain conditions for their action.*

(1) Some cathartics after entering the intestinal tract do not require the presence of an acid, or alkali, or bile to act. Among these are: podophyllin, rhubarb, senna, colocynth, castor oil, croton oil, leptandra, euonymin, iris, magnesium sulphate, magnesium citrate, sodium sulphate, sodium phosphate, tartrate of sodium and potassium.

(2) Some cathartics are inert without the presence of alkalies and bile salts. These make them active, either by dissolving them, or by forming new compounds with them. Among these are: jalap, elaterium, gamboge, scammony, sulphur, aloes.

(3) Some cathartics are inert unless they come in contact with an acid after they are swallowed. If there is no acid in the stomach when magnesium carbonate is taken, and it passes on into duodenum unchanged, it will not purge. Usually the acids in the stomach combine with it and then these soluble compounds are active; or if lemonade is taken afterwards a soluble compound will be formed. Calomel should not be given with acids,—not because it would make it inert, but because it might be converted into a soluble salt of mercury, which would make it a corrosive poison.

III.—*Classification according to the anatomical part of the tract on which they act.*

(1) *Small Intestine.* On this part of the intestine, castor oil, rhubarb, podophyllin, senna, leptandra, calomel, jalap, and scammony act.

(2) *Colon.* On this part colocynth, elaterium, gamboge, croton oil, and the salines act. The salines also act on the small intestine.

(3) *Descending colon and rectum.* Aloes is the only one in this class.

IV.—*Classification of cathartics according to their mode of action.*

(1) Those that slightly increase peristalsis. These are commonly called *laxatives*, such as treacle, manna, cassia, tamarinds, figs, prunes, sulphur, magnesia.

(2) Those that excite stronger peristalsis. These are usually called *simple purgatives*, such as rhubarb, senna, rhamnus, cascara sagrada, aloes, castor oil, and podophyllum.

(3) Those that stimulate secretion and lessen absorption. These are known as *hydragogue cathartics*, such as magnesium sulphate, and other salines.

(4) Those that greatly increase secretion and peristalsis. These are known as *drastic purgatives*, such as elaterium, colocynth, gamboge, croton oil, jalap and scammony.

V.—*Classification of cathartics according to other actions.*

(1) Those that are also *stomachics*. They include rhubarb, cascara sagrada, aloes, and euonymin.

(2) Those that are also *hepatic stimulants*. They increase the secretion of bile; aloes, colocynth, podophyllin, baptisin, euonymin, leptandrin, iridin, colchicine, sodium sulphate, sodium phosphate. Some of these in large doses are cholagogues, and then they diminish instead of increase the secretion of bile.

(3) Those that are also *cholagogues*. This is entirely a different action from that of hepatic stimulation. These cathartics

reflexly empty the gall-bladder into the duodenum and then, by peristalsis, hasten the removal of the bile from the body before there is time for its absorption, and return to the liver to be again excreted and poured into the duodenum. This action, instead of stimulating the secretion of bile, depresses it, because it empties the small intestine so that neither the digested material can be absorbed to stimulate the liver, nor can the large quantity of bile in small intestine be absorbed to be added to the bile secreted. Because of this action the stools after cholagogues contain large quantities of bile and undigested food. Some of the cholagogues in doses too small to be laxative, are also hepatic stimulants, but this action must not be confused with the other action.

Among the cholagogues may be mentioned calomel, blue mass, gray powder, podophyllin, leptandra, and iris.

(4) Those that also render the *milk purgative.* Some cathartics are excreted with the milk during lactation, and have a laxative action on the nursing child. Rhubarb, senna, aloes, and castor oil belong to this class.

(5) Those that also increase the secretion of milk. Castor oil does this.

(6) Those that also increase the menstrual flow. Aloes belongs to this class.

(7) Those that also increase the secretion of urine. Euonymin is a diuretic and expectorant; turpentine is also diuretic.

(8) Those that are also diaphoretic.

(9) Those that are also anthelmintics, as calomel, etc.

(10) Those that are also antiseptics, as calomel, gray powder, blue mass, etc.

METHODS OF EXPERIMENT TO DETERMINE WHERE A DRUG ACTS TO PRODUCE CATHARSIS.

I.—The first thing to determine is, whether the drug moves the bowels by increasing peristalsis or secretion, or by diminishing absorption; or by more than one of these actions.

This is relatively easy to do in comparison with what is next to be determined, and yet even this presents many difficulties to the experimenter. The following methods have been used in learning in which of these ways a drug acts.

(*A*) *By the character of the feces.*

Rabbits and dogs are suitable for this.

(1) If the stools are formed (solid), it is probably due to increased peristalsis of the colon.

(2) If the stools are liquid, it is due either to increased peristalsis of the small intestine, or moderately increased secretion or diminished absorption. The reason why increasing peristalsis of the colon causes solid evacuation, while increasing peristalsis of the small intestine causes liquid evacuation, is because in the colon the greater part of the water has been absorbed and the feces are solid, while the contents of the small intestine are always liquid; and if hurried on by peristalsis of the small intestine before there is time for absorption, then the stool will be liquid.

(3) If the stool consists of a profuse watery discharge, then it is due to increased secretion, and may be also increased peristalsis.

(*B*) *By inspection of the intestines through abdominal incision in the living animal.*

The difficulties are:

(1) The irritation of the colder air causes peristalsis, and soon the dryness of the peritoneum interferes with peristalsis.

(2) If anaesthetics are used they interfere with the peristalsis. Chloroform, ether, chloral, urethane, etc., affect the experiment, and Jacobi avoids their use.

(3) The shock from opening the abdomen modifies the experiment.

Technique of Experiment (Jacobi). Rabbits are suitable.

(*a*) It is better to use animals that have been starved for from three to six days, because in the starved animal there is little variation, but uniform results from the same amount of irritation. The intestines are collapsed and quiet; no spontaneous movements. The experiments on the fed animal vary, because it continually causes more or less peristalsis, depending on amount of material in the canal. Sometimes, for comparison, both are used.

Electrical stimulation of the vagus in neck stimulates peristalsis in the fed animal, while *in the starved it does not.*

(*b*) After opening abdomen, clamp common bile duct so that no bile will pass into duodenum, which would cause peristalsis.

(*c*) Perform tracheotomy, and then,

(*d*) Place the rabbit in a tin vat containing a physiological salt solution of the temperature of the intestines. This is to avoid the objectionable action of the air.

(*e*) Put over the intestines, to prevent their coming to the surface, where they would be exposed to the air, a glass plate with corks attached under it, so that it will float. The movements of the intestines can easily be seen through the plate. By this method can be observed if the cathartic causes peristalsis, and whether it is in the small or large intestine.

(*C*) *By measuring pressure within the intestinal canal which shows the amount of contraction and relaxation of the intestinal muscles.*

This method was used by Bechterew and Mislowski to determine the nervous mechanism of the intestine, and it is probably better suited for this than for determining the action of cathartics. Yet it is of some value, hence I present it.

Technique of the Experiment.— After curarizing a dog, the abdomen is opened and a rubber balloon, fastened to a glass tube, is inserted into the intestinal canal and the intestine securely sutured around the tube. Then the abdomen is sewed up close around the projecting tube. The balloon is then, through the glass tube, filled with warm water, and the tube connected with a water manometer, and this with Marey's registering apparatus, so that any changes in the pressure inside of the intestinal canal can be recorded. In this way can be learned the amount of contraction in the small intestine, ascending colon and descending colon.

168 So. Halstead Street, Chicago.

(To be continued.)

*TREATMENT OF TRAUMATIC ANCHYLOSIS.**

By THOMAS H. MANLEY, M.D.
Surgeon to Harlem Hospital, New York.

A rational therapy in the management of the arthropathies, pre-supposes a sound and ample knowledge of their etiology, the site and extent of structural disorganization, and the various pathological changes present. This being assumed, the way is clear for treatment. But, as there is no finality in the healing-art, and it yet remains an in-exact science, the opinions of some most eminent and illustrious authorities are not in entire accord on the question as to what the cardinal principles of treatment shall be. In many maladies, therefore, as a natural corollary, regardless of what may be said to the contrary, the treatment of different types of anchylosis is yet empirical.

THE GENERAL PRINCIPLES WHICH SHOULD GOVERN US IN TREATMENT.

Our curative measures in these cases of joint rigidity following injury may be, for convenience and ease of comprehension, devided into :—

1st. Constitutional; 2d. Local.

These might be further subdivided into, (*a*) palliative and (*b*) radical.

When a limb has sustained such a degree of violence as is followed by inflammation and rigidity in an articulation, the whole system shares in the shock; and concussive force is transmitted to the entire frame. The nervous and circulatory systems are profoundly impressed.

We will then, in the first place, address our attention to the general system. We will give our patient rest in bed until his full strength has returned. We will apply but simple remedies at the seat of injury; provided, a bone has not been luxated or fractured. Perhaps, by the time our patient has left the bed, the stiffened limb has limbered out and needs no further nursing.

---

* Read at the Annual Meeting of New York Railway Surgeons, New York, Nov. 15th, 1893.

But, what concerns us most, are those cases in which rigidity in the limb lingers, or drifts into a chronic state, or threatens the integrity of the joint altogether.

As long continued immobility always entails a wasting of the limb, though it may not in every case, as Gross alleged, cause degeneration within the joint, the question arises, as to whether we should at an early date in treatment endeavor to overcome this tendency by commencing motion in the joint, or even encourage moderate excercise of it.

The general tendency in recent years has been to lock every injured joint in an unyielding fixture. In other words, another species of anchylosis has been instituted by mechanical apparatus. Indeed, mechanical anchylosis is quite the rule now in the treatment of every description of joint lesion.

The theory on which this line of treatment is based is, that the injured parts must be placed in a state of absolute rest; and to secure this all the more effectually, a constant pull must be kept up on the muscles.

Portable contrivances have been manufactured, so that this extension may be maintained, while the patient is up and about.

Acting on another view of the requirements in treatment, others eschew all rigid fixtures. While the limb is at all painful, they allow the patient to keep the bed. They permit him to place the affected limb in that position which gives the most comfort. The bandage is called into use; bathing, friction, leeching, and rubefacients with passive motion are alternately employed. In this latter system of treatment, moderate and early motion, in all cases which present no evidence of serious intra-capsular lesions, is regarded as indispensable.

In all cases of anchylosis which come under my care, the latter has my preference, and a splint is never applied for support, except when no hope of restoration of motion is looked for. It is my firm conviction that the too early and protracted adjustment of any sort of an immobilization agent is responsible for more cripples with shortened, crooked limbs, by ten to one, than it has ever cured.

The practice, I am assured, is based on a misconception of the real condition and the recuperative powers of Nature. Many cases of anchylosis by this immobilizing plan, which, if left alone, might have promptly recovered, now locked in the rigid embrace of those iron fetters, are irreparably destroyed, or greatly limited in their extent of motion.

What, we inquire, is the *rationalé* of this homeopathic therapy by which it is expected to relax a stiffened joint through the more rigidly immobilizing it?

In a considerable number of these arthropathies rheumatoid arthritis is at the bottom of the trouble. For, some days before pain sets in, the muscles lose their tonicity and become slightly ataxic; the patient readily stumbles or falls, and now the trouble commences. Naturally the injury comes in for all the blame, while the condition which preceded it is often wholly overlooked.

There is no other theory which can be invoked to account for a few cases which have come under my observation, in which, when put to the test of specific medication, were at once relieved and quickly recovered the use of their crippled limbs. Invariably we will be informed, when the case is a child, that he had a fall or was struck. What, then, should our primary line of treatment be in those cases of anchylosis of recent or supposed traumatic origin?

First, place the affected limb in that position which gives the most comfort.

Second, prescribe such a constitutional medication as is known to exercise a specific action in arthropathic inflammation, or joint neuroses, as the case may be.

If our patient be in bed, let us put the limb in such an attitude as will afford the greatest relief; in other words, institute postural treatment. If our patient wishes to sit up, or walk about, a pair of axillary legs, the crutches, may serve as useful substitutes, until functional power is re-established in the distrained limb.

Our drugs for internal use must often be prescribed on empirical lines. We may find no pyrexia respond to the thermal test, no history of rheumatism, venereal disease, or malaria. But real inflammation of a structure or organ is often attended with no febrile disturbance at all, and there are many phases of paludal toxemia which find an expression only through the arthritic elements.

Therefore, in many it will be well to commence by instituting what may be designated the "therapeutic test." Place our patient on a low regimen; give the alkalies, salicylates and colchicum in small but continued doses until an impression is made on the system. Simple articular rheumatism is the essential factor in many of these cases of supposed traumatic anchylosis. But it is more rebellious to treatment than the poly-articular type. Gonorrheal arthritis is responsible for a large number of cases of severe joint affection, though it is only lately that the profession has awakened to the importance of its study as an etiological factor in this class of cases. Almost invariably our patient will tell us that he had a "sprain." But, if we are suspicious, let us examine the urethra, or the urine for a muco-purulent discharge.

John Hunter taught, that gonorrhea and all the chancres belonged to the same family, and that all originated from the same cause. It would seem that modern experimentation and biological studies had overthrown this view. But too many cases of a blenorrhagic origin have come under my own care which have only yielded when mercury was administered, to justify me in ignoring this doctrine of the great Scotch surgeon. Mercurial inunction over the joint, with a moderate dosage internally of the biniodide, exerts a most potent energy in dissipating the pain and hastening the resorption of inflammatory deposits in many gonorrheal cases when everything else has failed.

If our patient resides in an malarious district and there is reason to assume that the poison of this protean disease has entered the system, then arsenic or quinine administered with caution will often give prompt relief to the joint affection.

When we suspect our patient of being tuberculous, we have a serious element to deal with; though, as we know that the osseous type of it in young children tends towards spontaneous recovery, we are encouraged to persevere with our relief measures until it is subdued.

In all types of acute, traumatic anchylosis, attended with pain in the joint or adjacent tissue, free leeching is a therapeutic resource which has been too much neglected in America, though it possesses marvellous power in assuaging pain and cutting short inflammatory processes. In my own private practice leeching is freely employed over acutely sensitive joints, whether they are painful or not, and generally with the happiest results.

The hot bath, fomentations of the sedative herbs, or a fly-blister, all serve a most useful purpose. It is almost needless to add that a properly applied bandage at the right time is a sovereign remedy in the way of supporting weakened parts and in favoring the return of functional power.

After antiphlogistic measures have accomplished this part, we must now turn our attention towards overcoming the rigidity of the muscles and ligaments. This we will accomplish by easy stages in employing massage, baths, electricity and passive motion in several cases.

Treatment of the Chronic Type of Incomplete Anchylosis.

In many of the less serious cases of the above description we must take a different tack, as it were. Perhaps the ground work of the anchylosed limb may be dependent on a fracture into the joint, extensively shattering several bones, and the deformity cannot by any means be obviated. Here we have before us an ideal case for orthopedic fixation; for the chief question for us to decide is, At what angle, if any, shall we immobilize the joint? Which will secure to our patient the most useful limb? When the fracture is of such a character as will permit us to make a select tion after appropriate preparation we apply our apparatus or dressing and continue it until the hollow of the articulation is obliterated by an osseous consolidation.

This, however, is an extreme measure and should never be resorted to until all hope of restoring motion, or a certain degree of it, is lost, for, as a matter of fact, the majority of fractures into joints leave a fairly useful limb, and, besides, in many fractures in close proximity to joints, or the knee and elbow, particularly on a casual examination, we may prematurely assume that the capsule is involved, when in fact the damage to the bone structures is entirely external to the articulation. With these fractures passive motion must be instituted early. One need have no fear that moderate motion will in any way retard bone-union. On the contrary, slight motion at the seat of a fracture rather stimulates ossification of the fractured ends. It must be early motion at the joint, or no motion, in many fractures; and the great problem which the surgeon sometimes has to solve is, How will he secure the greatest range of joint-action without seriously disturbing osteogenetic processes and definite bone-union?

Immediate and Radical Measures for Overcoming those Types of Anchylosis in which the Neuro-psychoses Play an Important Rôle.

In the course of our experience we will meet with cases of joint rigidity and deformity following comparatively trivial injuries. These cases are most common in the female sex. At first the patient is inclined to treat the injury as a sprain with domestic remedies. But with time the rigidity of the joint and the limb becomes more and more accentuated, until at last it is quite powerless. Our patient loses hope, as local remedies make no lasting impression. This condition of worry is possibly aggravated by her medical attendant who may intimate the possibility of joint disease, and the necessity of a surgical operation being necessary in the near future.

This is the class through which the "Natural Bone-Setter" and the charlatan reap a harvest. Some wise, old woman comes in and advises the patient that the doctors don't know anything, when the patient is spirited away to the quack. Now, this fellow may not know much of anatomy and nothing of pathology; but he is a profound student of human nature, and he knows that to work the "fakir" he must reach the brain as well as the joint. He examines the limb, tells the patient that the doctors have made a botch of the case, and that he can cure her then and there. He assures her that "the bone is out." He seizes the limb and by a sudden motion thoroughly liberates all the adhesions. The awe stricken spectators, hearing the adhesions snap are ready to swear that they "heard the bone go into its place." But the shock is considerable; the patient screams and faints. However, in a few moments she revives and asks for her crutches. But now he commands her to throw them aside and walk; when to her own amazement she finds she can move about without them.

This is no overdrawn picture. These cases are not common, and their rarity is why so few practitioners can recognize their true character or treat them. Their successful treatment depends on three cardinal essentials:

1st. To inspire our patient with hope or confidence; call it hypnotic suggestion if you will.

2d. The infliction of pain; and

3d. The complete liberation of the joint and thorough sundering of all adhesions.

The infliction of pain is a *sine qua non* to success. It might be thought cruel to inflict pain when anæsthetics can be had, but these cases do poorly after they come out of narcosis and the anchylosis is apt to promptly relapse. Now my plan is to bath the joint freely with water as hot as can be borne for fifteen or twenty minutes, and administer an ounce or two of brandy before manipulations are commenced.

We must be assured that the bone is fairly healthy and that our force, though applied suddenly, is not too great and is in the right direction. After the adhesions are thoroughly freed we must insist on constant but moderate use of the limb.

Some surgeons place so much reliance on psycological impression in these cases as to divide the superficial tissues and make a "show" of an operation, after which the patient has gone on and freely used her heretofore useless limb.

Some authorities have taught that one should not undertake any sort of violent motion while the least trace of inflammation is present. But this evidently is a fallacy, for in some a chronic type prevails and only ends by running into an osseous consolidation if time is not taken by the forelock and the cause of the inflammation itself is not suddenly cut short by the full re-establishment of motion in the joint.

The Surgical Management of Complfte Traumatic Anchylosis.

A common impression prevails that a complete, permanent anchylosis is always attended with ossification of the articular surfaces. This is an erroneous view, for as a matter of fact the causes producing the contractured state often are in the soft parts quite outside the joint.

To what extent may we hope to overcome those chronic types of complete anchylosis? This question demands a different answer now from that which would have been given fifty years ago, when we could command neither anæsthetics, antiseptics, nor the mechanical appliances now within our reach. Forty years ago Samuel Cooper wrote, that "when a complete osseous anchylosis consolidation has taken place, a joint may be set down not only as incurable but as admitting of no improvement or alteration of position in the limb, and whatever that may be, the patient must be content with it."

Of all solidly anchylosed joints, with the exception of the elbow, this will hold good to-day; but in other types of incomplete anchylosis it will not. Indeed, unless we are quite positive—something which is impossible without opening the joint—that the surfaces are completely fused by bone, we should not despair of relieving the case. On this point at the present time most authorities agree, provided the patient is healthy.

Speaking on this subject, Brodhurst cites the case reported by Cazanove (Diseases of the Joints and Anchylosis, p. 214). A healthy young gardener opened his knee-joint accidentally with a pruning knife. Violent inflammation followed, and firm anchylosis set in. He consulted many of the most eminent surgeons in France, who all declined to interfere. Two years later, while out driving, his horse ran away; he was thrown out, and his knee and leg came in violent contact with the ground. As he recovered from the violent concussion of the fall, great was his amazement to find full action restored to the knee, and his anchylosis wholly cured. From this case, we are told, Louvrier got the idea that all anchyloses were curable.

It is unnecessary to enter into the details of the varied technique required in the operation manual for complete anchylosis. Certain types in different joints require special surgical measures. At the elbow, to permit motion, a resection is sometimes performed. At the knee, to make a crooked limb straight, an osteotomy is likewise employed.

In a considerable number of cases tenotomy is an available expedient.

But in all cases, before any sort of operative intervention is undertaken, let us first be assured that nature has not anchylosed the joint in the most useful position.

In very extreme cases, since prothetic science has made such rapid strides in the way of providing artificial limbs of moderate expense and remarkable utility, we may cut off the cumbersome distorted limb and promptly substitute for it another from the hands of the mechanic which can be carried with comfort through the day and cast aside at night.

302 W. 53d St., New York.

ARSENITE OF COPPER IN TYPHOID FEVER.

By A. H. Thomas, M. D.

Some two or three years ago several articles appeared in medical literature in regard to arsenite of copper in typhoid fever, and I began using it. Up to date I have a list of ninety cases with one death, and am so well pleased with the treatment that I shall continue to use it until something better offers itself. I do not know how the Brand method would compare with the arsenite of copper treatment in a number of hospital cases; but I do believe that in a community of iron miners, as we have here, more lives can be saved by the latter treatment, unless every bath be given by the attending physician, or a competent nurse. I do not believe in giving much medicine in typhoid fever, but I have satisfied myself several times over that arsenite of copper will do what Dr. John Aulde, in his *Pocket Pharmacy,** says it will, viz: "Its continuous use will maintain a moderately low temperature, a good pulse-rate, comparative freedom from great abdominal pain and tympanitis, and lessen materially the number of stools, while it greatly improves their character and consistency."

One thing I wish to emphasize is, the excellent condition of the alimentery tract after the fever is over. My attention has been called to this many times, and I find a favorable contrast when I compare cases that I attended years ago with those that I attend now with arsenite of copper as the main treatment. In more than one half the cases I used, during the day time, acetanilide compound* in the early part of the sickness to assist in controlling high temperature and headache, always giving the initial large dose in the early part of the day, followed by smaller doses at intervals of two hours until six o'clock in the evening, when it was discontinued until the following day, to be repeated in the same way when necessary. Quinine was used in two grain doses with the acetanilide comp. if there was chilliness; also in some cases for its general tonic effect, but never to the extent of cinchonism.

In a few cases, to relieve the symptoms of hepatitis, biniodide of mercury was substituted for the arsenite for a few days; also when the stools were white and pasty, using two or three tablets of $^1/_{100}$ grain each in half a glass of water, given several times during the first hour, then hourly in teaspoonful doses.

Of course the usual milk diet was rigidly adhered to, except in cases where it could not be taken: here Wyeth's beef-juice, liquid peptonoids, and Armour's wine of beef peptone were substituted, all of which I found excellent. Alcoholic stimulants were not used except where there was great weakness, and then small quantities of Port wine of good quality was preferred. Nourishment, I believe, should be taken with as much regularity as regards time and amount as medicine. My custom has been to practically discontinue food during the night, allowing only water and the arsenite solution for a period of six or

---

* "The Pocket Pharmacy," D. Appleton & Co., New York. 1892.

* The following is the formula of Acetanilide Compound:

℞	Acetanilide, ...	70 parts
	Caffeine, ...	10 parts
	Sodium bicarb., C. P., ...	20 parts.

eight hours, except where weakness seemed to indicate otherwise.

One point in beginning the treatment of a case of typhoid fever I have been unsettled about. I refer to a cathartic dose, or doses, of calomel before beginning the administration of arsenite of copper. I have watched several cases where this plan was followed, and several that had not, and am of the opinion that the cases in which the calomel was omitted did the best, unless there was obstinate constipation; and then a few glasses of Hunyadi water or an enema I believe preferable, beginning the administration of the arsenite as soon you suspect a case will develop into typhoid. For the constipation following the fever, nothing has seemed to act so well as enemas, or glycerin suppositories, and the continuous use of strychnine in small doses until the bowels have fully regained their tone.

As regards the dose of the arsenite of copper, I followed the plan suggested in the *Pocket Pharmacy*, previously referred to, giving $^1/_{100}$ of a grain each day in divided hourly doses while awake.

The one case that died was taken in the second week at 5 P. M., with intestinal hemorrhage, and died at 9 o'clock the same evening, from loss of blood.

Finally, while this paper contains very little if anything original in the treatment of a disease that has carried off hundreds in this section the past few years, it brings before the profession more evidence that arsenite of copper is a valuable agent, and I believe it would be more generally used if thoroughly tried in the way I have indicated. We have had an epidemic of typhoid fever in this village and the city across the river (Ironwood, Michigan) since the latter part of May, and it is from working side by side with excellent physicians and watching their treatment that I am prompted to write this article. I have been alone in the treatment by arsenite of copper, and of my results I am not ashamed.

Hurley, Wisconsin.

TOXIC ANEMIA.

By John E. Bacon, M. D.

Toxic anemia is a term used to designate a condition, too often called chlorosis, the pathology of which is simple, yet infrequently understood.

This condition is observed, usually, in girls and young women, though it may, and does occur in boys and young men given to sedentary habits and too close attention to study.

The characteristic clinical symptoms are: Constipation, with a history of irregular stools for some time; poor, capricious appetite, with eructations of foul-smelling gas from the stomach; occasional attacks of vomiting, followed by a period of relief from the dull headache, so often present in these cases; an occasional flush of fever; palpitation of the heart; a small, weak pulse, usually rapid; short breath on exertion; a general weakness of the muscles; an occasional slight jaundice; and, usually, a peculiar yellowish-pale complexion, almost waxy in appearance. There is frequently a hemic murmur at the base of the heart and in the carotids; the epigastrium also pulsates; the urine is usually scanty and concentrated, sometimes containing traces of albumin and quantities of earthy phosphates and chlorides.

The pathology of this condition has, as a rule, little to do with the blood-making organs or the corpuscles. It begins in a habitual neglect of the excretions, especially of the bowels, which, not being corrected, results in: First, an overloading of the lower bowel, producing over-stretching of the walls and a lack of tone in the muscular coats, with a constriction of the mesenteric circulation and re-absorption of the products of decomposition, even of fully formed ptomaines. Second, an obstruction or retardation of the portal circulation, which, in turn, results in depletion or anemia of the liver and congestion of the stomach and upper intestine; hence, gastric, enteric and biliary catarrh, if these conditions persist; digestion, both gastric and intestinal, will be interfered with markedly, and, attendant upon a diminished amount of bile from a depleted, torpid liver, fermentation, and even putrefaction, of partially digested foods will occur. There is no doubt but that this condition predisposes to a low grade inflammation of the blood-vessels working from within slowly through the coats of the vessels, favoring the deposition of lime salts, atheroma, and actual sclerosis. This slow inflammation of the vessels is especially prone to occur in the liver and favors the development of connective tissue in excess, both in the walls themselves and in the hepatic cells immediately around the terminal portal, and beginning hepatic veins.

The cause of failure in the treatment of these cases often rests in the fact that the digestive and assimilative apparatus is unable to perform its work, and the medicines, especially all forms of iron, are eliminated as sulphurets and tannates by the bowels; and, also, that there is not enough food taken or digested to supply the body needs.

The first step in the treatment of these cases should be the exhibition of an active cholagogue until the alimentary tract is thoroughly emptied. A favorite and efficient prescription is as follows:

℞. Hydrarg. Chlor. Mit........ gr. i;
Podophyll.................. gr. ss;
Sodii Bicarb.,....... ....gr. xl.
M. et div. in chart. No. viii.
Sig.: One powder every two hours until the bowels are freely moved.

Another formula, equally effective, is appended.

1) ℞. Olei Ricini ;. ....fl. ℥ ii.
2) ℞. Pulv. Effervensc., Comp., No. viii.
Sig.: Take two tablespoonfuls of the oil in a prepared seidlitz powder once each day.

This course of preparatory treatment will thoroughly empty and cleanse the bowels, something that, in the majority of these cases, has not been accomplished for months, or even years.

The next step should be a thoroughly restricted and properly selected diet, beginning with peptonized foods, in small quantities, at frequent intervals, and gradually working up to a nutritious, plain, mixed diet, which should be selected and advised by the physician; and, more important than all else, the patient must be made to cultivate a habit of going to stool at a certain time each day.

These measures, combined with regular exercise, or massage, if the case seems to demand, and a tonic, hereinafter mentioned, will serve to effect a cure in all cases presenting the foregoing pathology.

To assist the digestion and promote peristalsis and regular evacuations, I usually employ the following prescription:

℞. Pepsin. Puri, ...ʒ i;
Acid. Hydrochlor. dil.,....fl. ʒ ii;
Aquae,...........q, s. ad fl. ℥ iv.
M. Sig.: One teaspoonful in water one half hour before each meal.

In addition, the following is employed:

℞. Pil. Aloin. Strych. et Bellad.,
(P. D. & Co.). ....No. xxx.
Sig.: One pill at bedtime, each night.

After a month of this treatment, the results of which are usually satisfactory, it is a good plan to place the patient on the following:

℞. Beta-Naphthol,............. ʒ i;
Ferri Subcarb.,.............gr. xxx;
Pulv. Ext. Nuc. Vom., ... gr. viii;
Podophyll.,................gr. iii,
M. et ft. Pil. No. xxx.
Sig.: One pill after each meal.

This pill should be given regularly for a period of from three to six months, lessening the amount of nux vomica or podophyllum according to the effect produced.

Any physician who will have the patience to faithfully follow out this treatment, modified according to the circumstances governing cases, will not only cure his patient but increase his reputation and practice in this line.

As a profession we can not discourage too strongly the false modesty that impels many, especially women, to disregard the demands of nature and form the habit leading to the retention of the excretions for long periods until conditions like the above are brought about.

Sumner, Washington.

*SURGICAL SHOCK.**

By Charles P. Noble, M. D.,
Surgeon-in-Chief of the Kensington Hospital for Women, Philadelphia.

It is proposed in this communication to consider briefly the nature of surgical shock, and then to take up its treatment in detail. Shock is a condition of the body which is characterized by feebleness and rapidity of action of the heart, by the shallowness and frequency of respiration, by the lowering of the temperature of the body, and by the lessened activity of most of its functions. Intellection, digestion, and the secretion of urine, all are more or less in abeyance. It is probable, also, that the processes of assimilation and metabolism are profoundly interfered with. Perspiration is usually free, the body being covered with a cold, clammy sweat. This, however, is due, not to the increased activity of the sweat glands, but rather to an arrest of the activity of their cells, so that they simply act as strainers for the watery part of the blood to pass through them.

There can be no question that vitality is at a low ebb when shock exists, but there is some difference of opinion as to the real physiology or pathology involved. It is generally accepted that shock is a manifestation of paresis of the nervous system, its symptoms being due to lessened and irregular innervation. The question, as to whether the cerebro-spinal or the sympathetic system is most involved, is in dispute, and we do not propose, at this time, to attempt the elucidation of the question. As a matter of fact, injury of the body in any of its parts can bring about shock. Injuries to certain parts of the body are especially liable to produce shock. These parts are, the testicle and urethra in the male, the ovary (in a lessened degree) in the female, and the abdominal viscera. Examples of shock from injury to these structures are common, and familiar to every one of experience. The familiar experiment of temporarily arresting the heart's action of the frog by a blow upon its abdomen, is a striking illustration. Leaving aside the disputed points at issue, we wish to consider certain facts because of their very practical bearing upon the therapeutics of surgical shock. Among the most important symptoms of shock, is the lessened force and greater frequency of the heart's beat. The activity of the respiratory centre, also, is much lessened. The superficial bloodvessels are contracted, so that the surface of the body is pale and even blanched. The temperature of the body is below the normal. These facts are indisputable, and a recognition of the existence of these conditions forms the basis for rational therapeutics. Heat must be restored to the body; the heart and respiratory centres must be stimulated to do their work; the superficial bloodvessels must be dilated, so that the circulation may be equalized, by affording a channel for the blood which has been retained in the great veins of the abdomen. The practice which I have followed for some years to accomplish these results will now be given.

Treatment of Shock.

The most important point in the treatment of shock is its prevention. Much can be done by prudent management, either to avoid shock or to lessen its degree. In selecting the date for operation a time should be chosen when the patient is in good condition. Almost always this is possible. It is only in emergency cases, and when patients are suffering from a disease whose progress is steadily and rapidly downward, that preparatory treatment will not put them in better condition. All patients requiring operation should receive careful study, and every therapeutic indication should be met before operation. Especially should the condition of the emunctories be looked after. The bowels, skin and kidneys should be put in good condition by the use of baths, purgatives (especially broken doses of calomel and salines), and the abundant ingestion of water. The *morale* of the patient should not be neglected, as much can be done, by stimulating the courage of the timid and allaying the fears of the despondent, to make the patient look forward to her operation with courage and without dread. All these matters should be attended to prior to the day of operation. The temperature of the room in which the operation is done should be high,—from 75° to 85° Fahrenheit. In such a room the loss of heat from the patient by radiation is much less than when the operation is done in a cool room. Loss of heat from the patient can be lessened also by the manner in which she is dressed. It is best that she be well wrapped in blankets, and that as little of the skin surface be exposed to the air as the necessities of the particular operation permit. For the same reason the use of *wet* towels or gauze about the patient is to be deprecated. Evaporation from such wet materials chills the patient. Much can be done also by the proper administration of the anesthetic. Patients should not be drowned in ether. Enough only should be given to maintain anesthesia, unless, to meet a certain indication, absolute relaxation is required The prevention of hemorrhage, and the avoidance of rough handling of the patient, especially of the abdominal viscera, are matters of the greatest importance in preventing shock. The careful surgeon gives due attention to each and all of these matters of detail, and no one so much appreciates their importance as he who has to deal constantly with grave operations. This applies especially to the abdominal surgeon; because, in many cases, when he begins an operation the life of the patient depends upon its completion. He cannot do a part of it and postpone the rest to another day. In many of the long, tedious operations which he is called upon to do, involving multiple visceral adhesions, the very life of the patient itself depends upon attention to every detail to prevent shock, so that he may have time to complete the operation *secundem artem.*

---

* Read before the Phila. Obstetrical Society, Dec. 7, 1893.

The active treatment of shock consists in supplying to the body-heat which has been lost, in stimulating the heart to better work, in counteracting nervous depression, and in overcoming irregular action, especially on the part of the vasomotor nervous system, until reaction shall occur and the vitality of the patient can be sustained by alimentation. In describing the treatment of shock, I shall simply give an account of my own practice.

If, during the operation the patient begins to suffer from shock and there is reason to expect that this will increase, especially if the operation is not yet completed, I begin at once actively to treat it. One-fifteenth of a grain of strychnine sulphate and one-fiftieth of digitaline is given hypodermatically, and the dose of strychnine is repeated every fifteen minutes until some improvement is manifested in the pulse, or one-fifth of a grain is given. If improvement does not manifest itself promptly, and especially if shock be profound, or if the patient has been markedly prostrated before the operation, a hundredth of a grain of atropine sulphate and two or three minims of a one per cent. aqueous solution of nitroglycerin are given hypodermatically. In still other cases, from three to six grains of citrate of caffeine is administered in addition. During this time hot-water bottles have been put about the patient, and if the operation is an abdominal section, at times warm water is poured into the peritoneal cavity. I have also employed hot beef tea enemas, but, as a rule, an enema is not given, because it interferes with the completion of the operation, which is just as important as any one detail in the treatment of shock, if not more so. In fact, it is of the highest importance to complete the operation as rapidly as is consistent with safe work. The same is true of the after-dressing of the patient, who should be put to bed as promptly as is feasible.

The bed should have been warmed, by having hot-water bottles in it, while the operation was in progress, and in all cases in which shock is a marked feature, the sheets should be removed and the patient placed between warm, dry blankets. At this stage the use of whiskey by enema is of service, and at times it is proper to use whiskey during the operation, especially if shock is not another name for too much ether. The use of whiskey or alcohol in any shape is not good treatment for an over-dose of ether. The best way to employ whiskey, as a rule, is to give it by enema with hot beef-tea, about two ounces of whiskey and six ounces of beef-tea. Dry friction with the hand or with a dry cloth, especially to the extremities if they are covered with clammy perspiration, will do much to bring about reaction, and also will lessen radiation from the surface by preventing evaporation of the perspiration. Morphine in small doses, one-eighth of a grain or less, is also useful as a heart stimulant and as an anodyne, if, when the patient becomes conscious, there is marked pain. The morphine not only acts as a stimulant itself, but prevents depression, which would result from severe suffering.

So much for the immediate treatment of shock. Under ordinary circumstances, when the shock is marked and yet not so profound as to be alarming, within half an hour strychnine can be pushed to a fifth of a grain, atropine to a fiftieth, caffeine to five grains or more, and digitaline to a twenty-fifth of a grain; or what is really better, tincture of digitalis, half a drachm, with the one-fiftieth of a grain of nitroglycerin.

If the crisis has passed and yet the patient remains in a markedly depressed state, the question of treatment for the ensuing twenty-four or forty-eight hours comes up. The use of external heat should be continued until the temperature of the body becomes normal, and even longer, should the patient complain of chilliness; but the sheet anchors of safety are strychnine, digitalis and whiskey. In a marked case it is my habit to give the following order: To give hypodermatically, strychnine sulphate one-thirtieth of a grain, one hour; tincture of digitalis, fifteen drops with the one-fiftieth of a grain of nitroglycerin, the next hour; three grains of citrate of caffeine, the third hour; and an enema of whiskey two ounces, and beef-tea six ounces, the fourth hour. This order I have had carried out many times for twenty-four, forty-eight, and even seventy-two hours.

In the worst of cases, for its temporary effect, cocaine has been employed in addition to the above; also, small doses of morphine, if much pain and especially if great restlessnes was present. It is my experience that most patients will take a fifth of a grain of strychnine in twenty-four hours without manifesting symptoms of strychninism. I have not employed the heroic doses of strychnine described by some writers, such as half a grain within two hours, but in a desperate case, watching it carefully, I should not hesitate to give repeated doses of one-fifteenth of a grain every half hour for a short time, until some symptoms of irritation of the spinal cord appeared. We certainly have no more reliable exciter of the nervous and muscular systems than strychnine; nor any drug which is more capable of maintaining its effect.

Digitalis is also a very reliable drug in the treatment of shock. It is capable of whipping up the heart to increased work, especially for a few days and until a sustained effect can be secured by alimentation. This is exactly what is required in the treatment of shock. Digitalis has, however, one effect which is undesirable. It causes a contraction of the arterioles, and thus increases arterial pressure, so that while it whips up the heart to do increased work, it also hinders the heart through the increase in arterial pressure; hence it is wise in the treatment of shock, to combine digitalis with nitroglycerin, which overcomes this bad effect of digitalis. The combination is much more effective than either drug alone. Caffeine is a pure heart stimulant, and can be administered freely without evil consequences. Alcohol used judiciously and in not too large quantities, is one of our most important remedies. In shock following abdominal operations, it is best administered by enema combined with beef-tea, which is itself a stimulant. Later in the case, champagne by the mouth is often of service, but it fills only a partial indication and is not to be compared in value with whiskey when this can be ingested and retained.

The management of the diet in the treatment of shock is also important. Immediately after an operation accompanied by much shock, the stomach, as a rule, is not retentive ; hence it is wise for a time in no case to administer much aliment of any description by mouth. Some hot black coffee or hot beef-tea is as much as should be given. When the stomach becomes retentive, light, easily assimilable food should be employed, as beef-tea, broth, milk (preferably peptonized), egg-nogg, punch, etc. These foods should be administered in small quantities frequently repeated.

The question of alimentation in the treatment of shock following abdominal operations offers certain peculiar difficulties. Under ordinary circumstances, when shock is not a special feature, it is the rule to administer no food to the patient who has had a celiotomy, for from thirty-six to forty-eight hours after the operation. Then broths or beef-tea from two drachms to one ounce, or two drachms of milk with one of lime-water, are given every half hour, and if retained the quantities are increased and the intervals lengthened, until about the fourth day after operation the patient is put upon liquid diet, the amount being regulated largely by the appetite. But in cases accompanied by marked shock, if the stomach proves retentive, it is wise to begin the administration of milk or beef-tea at the earliest feasible time—the quantity being increased as rapidly as in the judgment of the surgeon the patient is able to digest and to assimilate. In some critical cases, lives will be saved by judicious alimentation, which would be lost were the usual rules applicable in abdominal surgery followed.

It may be questioned whether the term shock should be applied to conditions which persist for one, two, three, or more days. It is customary to consider that shock is of temporary duration, and that it ends either in the prompt death or in the recovery of the patient. But there are cases in which it is difficult to assign a name for the condition of patients, if it be not shock. I refer to those cases in which the patient exhibits marked shock after operation, and in which, although after a time the temperature of the body becomes normal and remains so, yet the patient's vitality remains at a very low ebb ; the pulse continues rapid, small and feeble; the cutaneous circulation is not restored, the surface of the body being cool and pale ; and no other symptoms are present except those of pronounced asthenia. This condition must be called shock, or else inanition or asthenia following shock. The condition persists until it is relieved by alimentation, as the nerve and heart stimulants, strychnine digitalis and even whiskey, are not curative. I have had patients die in this condition as long as a week after operation, without having manifested other symptoms than those of pure asthenia, and in which the post-mortem examination showed no cause of death. On the other hand, I have seen patients recover from this condition, improvement becoming manifest upon the third, fourth, or fifth day, when it had appeared that death was imminent from failure of the heart and respiratory centres. It is in such cases that judicious alimentation is of the highest importance.

In this class of cases the administration of oxygen gas by inhalation, is at times of service. All the vital functions are at such a low ebb, that any agent which is capable of improving the processes of metabolism is of value. My experience with the use of oxygen for this purpose is limited to one case, which was one of marked shock following an operation for double pus-tubes, in a woman reduced to the last extremity by hectic. She went to bed with a pulse of 160, with cool and blue skin, and with every other evidence of the profoundest shock. The pulse did not fall below 145 for three days, near the close of which period there was every indication of early death from pure asthenia. The plan of treatment already detailed was followed out in her case, and in addition oxygen gas was administered during one day. It seemed to be of great benefit; at all events, she passed out of the shadow of death and made a good recovery.

2134 Hancock Street, Philadelphia.

POSSIBILITIES IN THE THERAPY OF NUX VOMICA.

By E. Macfarlan, M. D.

That nux vomica has a wider range in therapeutics than heretofore known, or even conceived by the medical profession, is evinced in an article published within a few years in the London *Lancet*, by Dr. A. Bowie, relating his wonderful success in the treatment of several cases of cardiac failure, in which death was imminent, by the use of nux vomica. He administered the tincture in small doses—quantity not specified—every half hour for four successive doses, and then every hour, and in each case there was speedy relief.

Some six months subsequent to reading this statement of Dr. Bowie, I was called in haste about 2 a. m., to Mrs. R., a widow, aged 52. She was one of my clientele and I knew she was afflicted with cardiac hypertrophy and mitral insufficiency; consequently on my arrival I was not surprised to find I had to meet a case of heart-failure. On examination of my patient, found pulse weak, thready, intermittent, and, as nearly as could be counted, 120. Face cadaveric, with cold moisture, and cold lower extremities; her voice almost inaudible, having sunk to the merest whisper.

She was sitting upright in a high back arm-chair, well bolstered, the recumbent posture being impossible on account of the distressing cardiac asthma under which she was, and had been, laboring for several hours.

I at once informed the family of the serious nature of the case and the imminence of death, but said I would proceed to use what means I could to save my patient. To myself, however, the chance seemed doubtful; but I immediately commenced an active battle against death. Bottles of hot water were applied to the lower extremities, and small and frequent doses of tinct. digitalis were given; but time sped on with no favorable results perceptible, and the pulse becoming weaker.

It was at this critical juncture, as I sat by my patient with my finger trying to perceive the pulse-wave of the radial, and with my brain endeavoring to conjure up therapeutic possibilities—the happy experience of Dr. Bowie with nux vomica came with a hopeful rush into my mind, and suggested that a trial in the case before me, though seemingly so desperate, might succeed. At any rate, here was an opportunity to test its efficacy in heart-failure. Fortunately I had a small bottle of the tincture in my emergency case; my patient was obviously sinking and, therefore, whatever could be done, must be done quickly.

Dr. Bowie had given small, half hour doses—the quantity not specified. I acted on my judgment in the emergency and administered one drop every five minutes in a teaspoonful of water, and—*mirabile dictu*—after the fifth dose a slight pulse-wave was perceptible in the left radial; and when three more doses had been given, the wave had increased in force and fulness, and to my joy, the pulse could be counted, and I made it out to be 112. After three more five-minute doses, the pulse had so much improved in strength and fulness that I lengthened the interval to ten minutes, and when three one-drop doses had been given at this interval, my patient had rallied to such a degree that it was obvious she had passed the danger point, and was in the joyous way of recovery. Her pulse was now in the nineties; she had recovered her voice; the dyspnea had almost left her; the normal temperature of the body was restored, and she expressed herself as feeling comfortable. It was now 5 a. m., and finding I could safely leave my patient for a few hours I dropped ten drops of the tincture into ten teaspoonfuls of water and ordered a teaspoonful every half hour for four doses; then a dose every hour until I should return. On leaving my patient the reader can well imagine that I was in a more blissful state than when called to her at 2 a. m.

Although I had no good reason for questioning the success achieved by Dr. Bowie with nux vomica in heart-failure, yet, I confess, in the case of Mrs. R. its use was purely experimental, and, as a *dernier resort*, carried with it but a faint hope of therapeutic success; the result, therefore, was to me, a charming revelation of the possibilities of nux vomica, and on my way home, in my heart, I thanked God, and mentally exclaimed: Blessed be nux vomica! And the peculiar sensation that took possession of me as I walked in the gray light of early morning, was, that I had just witnessed a resurrection.

I made my next visit about 10 a. m., and the daughter requested me to walk into the dining-room, where I would find her mother. My patient had enjoyed several hours of uninterrupted sleep, by which she was so much strengthened that she requested to be assisted to the dining-room to take breakfast with her family. I found her sitting very comfortably in an arm-chair, and a smile spread over her face as I gave the morning greeting. Her respiration was normal, and pulse fairly good, excepting as modified by the old cardiac condition, and in reply to my inquiry in regard to present feeling, she expressed herself as having a sense of well-being, though, of course, feeling weak. The one-drop doses of nux vomica were continued hourly up to bedtime for two days longer.

It was while watching closely the therapeutic action of nux vomica in this case, that I observed with interest and surprise a dual action was manifestly in operation; for as cardiac reaction steadily gathered force by the frequent repetition of the one-drop doses, it was noticeable that the asthma was simultaneously disappearing, and normal respiration was asserting itself.

When afterward reflecting upon this clinical observation it occurred to me, that as a therapeutic carollary nux vomica might prove efficacious in bronchial and other forms of asthma. With these thoughts on the therapeutic possibilities of nux vomica, I resolved on a practical test in the first case of asthma I should meet with,—nor had I long to wait.

It was but a little more than a month from that date, I received an urgent message about 9 p. m. from one of my clientele to come at once, as one of the daughters was very ill. Happily, I was at home, and hastened to the residence of my patient. On my arrival I found Miss C. sitting up in bed, bolstered by pillows, and breathing with the greatest difficulty. A brief examination enabled me to diagnose the case as bronchial asthma, and the paroxysm extremely violent. On learning the history of the case, it appeared that some two weeks previous Miss C. had caught cold; but not considering it of any moment, attended to out-door engagements, taking however such domestic remedies as her mother desired. But the cold grew worse, the cough more troublesome, the home remedies failed to relieve; and now she recognized the fact that acute bronchitis had set in, and that she must stay in-doors. She had passed through an attack of bronchitis and asthma a little over a year before, and dreaded the latter; but it came in a few days, and it was at this crisis I was sent for; the family were greatly alarmed, and I found them all surrounding her bed.

As Miss C. sat there on the bed struggling for breath and life, as it were, with each long, labored, and painful respiration, she was truly an object for commiseration. She looked the very picture of lost hope and agonizing despair; and I think I shall never forget the pleading, piteous look she gave me when, as I stood at her bedside, she asked in a broken whispering voice for relief. And now my chance had come to test nux vomica in the very sort of case I had been waiting for. It is true, I had an extreme case in hand to make the test. It might fail, and time be wasted. So might other remedies recommended in asthma fail. Well, I could fall back on them if nux vomica failed me. So I determined to act upon my convictions in regard to its therapeutic possibilities and take my chances for success. I therefore immediately commenced giving the tincture precisely as in the case of cardiac failure. Soon after the sixth one-drop dose every five minutes had been given, a very perceptible improvement of the respiration was apparent to every one in the room, and after five more doses I was both astonished and delighted at the favorable change. My patient was breathing with ease; her face was brightened by a smile; despair had vanished; hope had returned; and she expressed to me her gratitute for the relief which had been given her in such short time, and thought those were wonderful drops she was taking.

The one-drop doses now were given at intervals of ten minutes for four doses, and the victory was complete; the patient became cheerful and chatty, and felt assured, as she could now lie down, that she would have a good night and sleep well; when I made my call in the morning I found her lying quietly in bed with normal respiration and a good pulse. She had enjoyed a tranquil and refreshing sleep. Once in the middle of the night she awakened with a slight asthmatic breathing, but a few one-drop five minute doses—which were given according to my instructions, if necessary—had afforded speedy relief, and there was no further interruption to sleep during the night. Miss C. was bright and cheery, and had partaken of a light breakfast. At this visit I directed one-drop doses of the nux vomica to be taken hourly up to bed time for several days, not less than two. This I deem very essential in using this remedy, both in cardiac failure and asthma, in order to maintain its therapeutic effect upon the system. But just here, I would remark, that I shall offer no theory in regard to the modus operandi of nux vomica in any of the cases in which I shall report its use in this article. I am only showing practical results.

My remarkable success in this case of bronchial asthma was another revelation to me in the therapy of nux vomica. And I had again good reason for saying: Blessed be nux vomica!

It was some two months after the bronchial asthma case that I was called in haste to Frank S., aged 8 years. I found the boy in a paroxysm of asthma. The history of this case, and subsequent discovery of exciting cause is so unusual as to make it unique and instructive. In the early part of spring of that year I had attended the boy in an attack of acute bronchitis, which readily yielded to the usual treatment. Near the close of spring, his parents informed me, he was seized with difficulty of breathing—this of course was a paroxysm of asthma—but his mother supposing it to be the result of cold, and as I was absent from the city, did not consult any physician, but kept the boy in-doors and gave him domestic remedies. He did not, however, she told me, get over the attack for several days. Now, doubtless, the previous attack of bronchitis was a predisposing cause in this case, but there was also an exciting cause, as I afterward discovered, and of an unusual character.

But I must now speak of my treatment of the paroxysm under observation, premising that a chest examination did not reveal any bronchial inflammation. There was only a slight râle, such as we usually find in the larger tubes in cases of simple irritation; and there was a peculiar sound heard anteriorly over the large tubes, much like that made by boys when blowing through a piece of mock-orange vine, which was evidently caused by spasmodic contraction of the muscular structure of the bronchi. This sound was heard particularly during expiration. I was, therefore, of the opinion this case was neuropathic.

My remarkable success with nux vomica in the case of bronchial asthma prompted me to try its therapeutic possibilities in this form of asthma, and the result was equally gratifying. I gave half-drop doses every five minutes for four doses, and then the same dose every ten minutes. Within an hour I had conquered the paroxysm. I now directed the half-drop dose to be continued hourly up to bedtime; and during the night, if the breathing should be asthmatic. Respiration was then nearly normal, and the patient—if he had been allowed—would have joined the other children in their house sports.

When I called next day, the boy was quite free from asthmatic breathing and engaged at play. I continued the nux vomica for two days longer, however, as a precaution against the recurrence of a paroxysm. But I have yet to relate the peculiar feature of this case, which, as stated above, was an after discovery.

About two weeks subsequent to the boy's asthmatic attack, I met his father on the street, and in answer to my inquiry as to his boy's condition, he replied: "Well, Frank is getting on pretty well; he has had, however, a few slight attacks of the asthmatic breathing since you last saw him; but, by the way, Doctor, he has another trouble I wish you to look after. The hole in the fore-skin is so small, he has great difficulty in passing water." "Yes, we noticed it a few months after birth." By appointment I called the next morning and examined the boy in the presence and with assistance of his father, as the little fellow was very obstreperous. The prepuce could not be drawn over the glans penis, and I found it to be a marked case of phimosis. Now, I am aware that phimosis is frequently the cause of various neuropathic conditions; therefore, it might be in this boy's case that his attacks of asthma were of peripheral reflex origin, and—*ergo*, get rid of the phimosis and there would be no more asthma.

The matter was fully explained to the parents, and the necessity of an operation appreciated. They objected to circumcission, and so I adopted the plan of dilating the prepucial orifice until the glans could be completely uncovered with ease.

My prediction of a favorable result has been fully verified; the boy has had no return of asthma since relieved of the phimosis.

314 West 126th Street, New York.

ONE OF the attending physicians at the World's Fair, Chicago Hospital, who has a large private practice, reports that he uses chloralamid largely in sedative doses (3 to 5 grains) for nervously exhausted patients, and he claims that it is the most remarkably efficacious remedy he ever used for giving relief in sick nervous headache, physical exhaustion and kindred conditions brought about by excitement, optical strain, heat and unusual exercise.

MUCUS A BACTERICIDE.—No one for a moment would suppose that mucus possessed bactericidal properties, but according to the investigations of two Frenchmen, Wurtz and Lermoyez, this seems to be the case. For example, they have made extended studies with reference to the bactericidal action of mucus taken from the nasal cavity and find that it is active against the glanders bacilli, a pertinent observation in connection with our editorial remarks on the subject of nuclein-therapy. This subject is of vast importance and should receive attention.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. DECEMBER 15th, 1893. No. 6.

Editorial.

DOSIMETRIC PRACTICE.

It is only within the past five years that dosimetric practice in this country has apparently gained any considerable foothold, but the indications point to a widespread desire on the part of general practitioners to test its virtues clinically. Introduced by its founder, Dr. BURGGRAEVE, of Ghent, more than a quarter of a century ago, as a great improvement upon the methods of the time, it has attained some notoriety in different sections of the globe, but owing to the fact that a specific name was attached to it, no popular wave of approval has attended its general propagation. There are certain facts relating to the method which physicians ought to know, as they have a direct and important bearing upon ordinary methods of medication.

According to the literature published in America, "*Dosimetry teaches the use of medicinal alkaloids in small, frequent doses until their therapeutic effects are obtained,*" a definition which is sufficiently comprehensive and definite to be applied to so-called "physiological" medicine. No matter whether the physician administers the crude drug, an alkaloid or its salts, or glucosides, he always does so with the expectation that certain results will follow their exhibition. Dosimetry, however, teaches that the alkaloids and their salts should be given instead of the crude drugs, because the founder of the system believed that much more certain results would attend the exhibition of active principles; but this much all regular physicians readily grant, so there is practically no material difference between dosimetry and rational medicine.

A peculiarity of dosimetry, perhaps more prominently brought forward by the followers of BURGGRAEVE, consists in making a sub-division of the treatment into "*dominant*" and "*variant.*" Dominant treatment is directed especially against the disease and its cause, while the variant treatment is intended to meet the collateral symptoms; but even here, there is comparatively slight modification of what we now understand to be rational medicine. And when the whole matter is summed up, barring the fact that dosimetrists confine themselves chiefly to alkaloids and salts of the same, were it not for the name, there is really no difference in the methods of securing results.

Since dosimetric practitioners are limited to a comparatively few remedies, how shall we account for the measure of success which they claim, as it is evident from current literature that their patients do not all die. If the results of treatment by this method are as good as those by the usual plans, it follows that alkaloids and other active principles are equal to the crude drugs in maintaining a healthy condition of the human economy. The facts are patent going to show that active principles are even more effective in subduing various forms of diseased conditions than ordinary crude drugs, and very many of our most useful remedies have been investigated through this means alone, so it will be in order to inquire what factors are at work to bring about this issue. In truth, it is a question of vast importance, because it involves an inquiry into the reasons fo the greater efficiency of active principles; and while nearly every physician of ordinary intelligence will be ready to answer the query by the statement that alkaloids and salts thereof are chemical products which produce uniformly like effects, from the standpoint of the writer, such a reply is anything but satisfactory.

The secret of successful medication, whether it be according to the teachings of BURGGRAEVE, or in accordance with the deductions of experimental physiologists, must finally be discovered by an investigation and study of the effects of medication upon the living cell. It will take a long time for this study to advance to a point where it will be of practical value, but it is only a question of time, as will be inferred from the published accounts of Prof. HODGE—quoted in our last number—relating to the effects of stimulation of nerve-cells. It is not too much to assume that alkaloids or other active principles will produce a stimulant action upon nerve-cells and upon protoplasm, similar to that which attends the exhibition of ferments, and thus we are in position to study this important and far-reaching question from the standpoint of the clinician.

NUCLEIN-THERAPY.

By nuclein-therapy is meant a therapy which is based upon the assumption that a powerful antiseptic substance is secreted by the nucleus of the white blood-corpuscles, first demonstrated by Prof. VAUGHAN. Nuclein-therapy is really in fact a scientific confirmation of cellular-therapy, which aims to study the action of medicaments upon the living cell. Various attempts have been made to adapt nuclein-therapy to clinical purposes, although but little has so far been accomplished. Nevertheless, it is very well known that METSCHNIKOFF's phagocytosis must depend on something more than the mere influence of the modified white blood-corpuscle. VAUGHAN's investigations demonstrate beyond a doubt that the phagocytic action is due to the activity of the nucleus of the cell; that so long as the cells are in a normal condition, the nucleus secretes a proteid substance which he has called "nuclein," and that solutions of this nuclein are antiseptic.

Solutions of nuclein can be prepared from yeast-cells, from the yelk of the egg, from the spleen, from the thyroid gland, and from other portions of the animal organism. These investigations further show that such solutions will arrest the multiplication of micro-organisms, and that rabbits inoculated with tuberculous sputum will not be infected, provided a solution of nuclein be introduced within a reasonable time after the injection of the poison. The idea entertained in regard to the action of solutions of nuclein is, that they stimulate the activity of the nuclear body of the blood-cells, and thus maintain an antiseptic condition of the blood—a condition inimical to the growth and multiplication of micro-organisms.

To show how this matter is receiving attention elsewhere, we quote the following:

> "GERMAIN SÉE, of Paris, has given this name *(Nuclein)* to a substance extracted from the cells of the spleen and from various other organs. It is a phosphorated protein, thus distinguishable from other albuminoid substances. It is a light-yellow-colored powder, insoluble in alkaline solutions. According to the author, the injection of a solution containing 2 or 3 grammes (30 to 45 grains) of this substance will augment the number of white globules acting as phagocytes. SÉE has mentioned, in particular, the good effects obtained by the use of nuclein in certain cases of pneumonia and of pleurisy."—*Universal Medical Journal*, November, 1893.

In this connection should be mentioned the fact that it is almost impossible to secure from the usual sources a perfectly pure nuclein, all of the solutions containing a greater or less percentage of albumen, but as stated above, the results in the case of pneumonia and pleurisy have been sufficiently satisfactory to warrant further study.

For several years past the writer has been making tentative experiments with dilute solutions of pure nuclein, and while the clinical results were often most aston ishing, he was loath to believe that the method of treatment hinged upon scientific study. Fortunately, Vaughan's account opportunely appeared, and with the scientific search-light thus furnished, all mooted questions were quickly settled, and cellular-therapy is no longer a dream, but a demonstrable fact. To the question, What are some of the indications for the employment of nuclein solutions in addition to that given above—pneumonia and pleurisy?—the writer suggests its employment in the treatment of a number of diseases characterized by low conditions of the system, particularly anemia. It would also be useful, *a priori*, in the treatment of malaria, diphtheria, typhoid fever, tonsillitis, and nearly all affections of the liver, and in a majority of the cases of diseases of the skin which come to the notice of the general practitioner. Given in small doses it causes no unpleasant symptoms, but on the contrary, the patients feel exhilarated and begin to improve with the administration of the first dose.

The clinical study of nuclein-therapy as a factor in cellular-therapy has not been long enough under observation to warrant positive and definite statements in regard to the employment of these solutions, but evidence is accumulating which shows they are entitled to further research and study. A careful investigation of their clinical value will, it is believed, bring to the surface some important practical results that shall go far toward working a revolution in the methods of treating disease now in vogue.

IS CALCIUM SULPHIDE ANTISEPTIC?

Most physicians familiar with the remedial properties of calcium sulphide, if asked the above question, would doubtless reply promptly, giving an affirmative answer, but in the opinion of the writer, such a conclusion would be a serious error. While it may be true that sulphureted hydrogen is inimical to organic li
the production of this gas in the syste
from the exhibition of the drug is n
sufficient to affect the growth and
production of microörganisms; althou
it is well known that the sulphid
produce debility, fatty degeneration a
wasting. Bartholow says that these sa
undoubtedly exercise a toxic action up
the blood, impairing the red bloo
globules and increasing the amount
effete material.

Notwithstanding the unfavorable in
cations mentioned, we should bear
mind that the effects described result fro
the long continued or active use of t
remedy, and we must, therefore, look f
therapeutic "signs" in another directio
The clinical observation that the sulphid
cause debility, anemia, wasting and fat
degeneration, is not an exemplification
any law, although it may serve us b
way of analogy to discover the true bas
of its application in the treatment of di
ease. It is to such questions as this th
the American Therapist seeks to attra
attention. Whether calcium sulphide i
or is not, antiseptic, is of comparative
small moment, since but a limited numb
of physicians have any conception of i
merits. There is, however, an importa
principle involved, and several factors a
so intimately connected with the attai
ment of clinical results, that we fe
impelled to call attention to the subjec

Some of the factors to be considered i
this connection are as follows: Calciu
sulphide increases the functions of elim
ination and the discharge of effe
material; being eliminated in part by th
glandular appendages of the alimentar
canal, it possesses laxative properti
when given in sufficient dosage; enterin
the blood, and from thence being carrie
to the inter-cellular fluid, it increases th
elimination of katabolic products in
manner similar to its effect upon th
functional activity of the intestinal trac
It does even more than this, since it ha
a like action upon the blood-globule

making them more active, provided the dose is not too large, and thus the discharge of carbonic acid and other waste products is favored. Again, being eliminated by the mucous membranes throughout the system, a portion escapes by the pulmonary structures, and again there is increased cellular activity. And the same is true of the skin, as we know that calcium sulphide is an efficient remedy in a large number of skin diseases. It might be added, by way of parenthesis, that this drug is not useful in intestinal affections, pulmonary complaints and skin diseases merely because elimination takes place through these structures; rather should we look for the benefit to be derived from its influence upon cellular activity by its distribution throughout the system by means of the inter-cellular fluid, and also through its influence upon cellular activity when eliminated directly through mucous surfaces and through the skin.

This explanation, we think, puts the exhibition of calcium sulphide above and far beyond mere blind empiricism, and yet there is apparently still a missing link to enable us to establish its use upon a true scientific basis.

To say that this or any other drug is efficient against disease by reason of the fact that it increases cellular activity, is not sufficient for scientific purposes, however useful and convenient it may be to express clinical data. Is there not something more definite and exact that can be offered in the way of explanation of the principle involved? Yes, we think there is, and that is the activity of the cell-nucleus—nuclear activity—a further corroboration of *cellular-therapy*. It is explicable in this wise: Calcium sulphide being a protoplasmic irritant, if not a poison, when given in suitable dose, stimulates the nuclear function of the peculiar white blood corpuscles known as phagocytes. This function, be it remembered, is that of manufacturing or secreting an actively antiseptic substance. It is this secretion or manufactured product of the cell-nucleus which enables the blood-serum to enact the role of an antiseptic. Now, if calcium sulphide, coming in contact with protoplasm, stimulates it to give off oxygen and manufacture ozone; if it acts in like manner upon the blood-globules and upon the cells concerned in elimination; and if it actually does stimulate the nuclear function of the white blood-cells, we can readily understand how it produces its so-called "*alterative*" action, and removes waste products; but there is, so far, no evidence that it acts specifically or directly as an antiseptic. It is not an antiseptic, but its effect upon the system is to stimulate the secretion of the "*natural antiseptic*" which is to be found in blood-serum. This is the important principle which should be foremost in the minds of those who administer it, and moreover, it is a general principle which applies equally to many other drugs and remedial agents.

WE HAVE RECEIVED from Dr. A. LAGORIO, Director of the Chicago Pasteur Institute, the following facts as to the results of the preventive inoculations against hydrophobia attained at this Institute since its inauguration, July 2, 1890.

To date 302 persons have been treated, classified as follows:

104 bitten by animals recognized and ascertained to be rabid by the experimental proof made in the laboratory; or by the death of other persons or animals bitten by the same animal.

126 bitten by animals recognized to be rabid by the symptoms of the disease shown during life.

72 bitten by animals strongly suspected to be rabid.

282 persons were bitten by dogs, 7 by horses, 7 by cats, 3 by skunks, 2 by wolves, 1 by a mule.

The persons treated came from the following States: 185 from Illinois, 32 from Iowa, 23 from Indiana, 21 from Kansas, 9 from Ohio, 5 from Missouri, 5 from Arizona, 4 from Minnesota, 4 from Michigan, 4 from Louisiana, 3 from Tennessee, 3 from Kentucky, 2 from Texas, 1 from Wisconsin, 1 from South Dakota.

One death was reported among the patients treated, thus giving a mortality of only 0.33 per cent.

This is certainly an interesting record.

PROCEEDINGS OF SOCIETIES.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

EINHORN'S GASTRODIAPHANE.

Exhibited by S. SOLIS-COHEN, M. D.

I wish to call the attention of the Fellows of the College to the "gastrodiaphane" devised by Dr. Max Einhorn, of New York, which consists of a small electric lamp fastened to a flexible stomach-tube with cords connecting it with a source of electric power and with a handle to make and break the current. Four storage cells having an electromotive force of 8 volts, or an equivalent number (6) of freshly charged bichromate primary cells will operate it. The patient having swallowed two glasses (one pint) of cold water, the end of the tube is lubricated with glycerin and the instrument is then readily swallowed by a person accustomed to swallow the stomach-tube and sometimes by those not accustomed to its use. The examination being made in a dark room, when the current is turned on, the contour and area of the stomach appear very plainly as a luminous red zone on the abdominal wall. The advantage of this method is in determining the presence or absence of thickening in the anterior wall of the stomach, and in determining the exact position of the stomach and the outline of the lesser curvature. It is exceedingly useful in diagnosticating between dilatation of the stomach and the condition termed gastroptosis, or sinking of the stomach. I have used the instrument in many normal-sized stomachs, and in half a dozen cases in which diagnosis was in doubt. In one case it confirmed the diagnosis of dilatation where the ordinary methods of percussion were unsatisfactory; thus proving the presence of pyloric obstruction, although the cause of the obstruction was so situated as not to be manifest. In another case, with symptoms of carcinoma, and absence of free HCl, but in which a tumor could not be felt, the thickening of the anterior wall appeared very clearly on the abdomen as a dark patch in the midst of the zone of trans-illumination. In another case in which there was a question whether or not a tumor of the abdominal wall communicated with or was attached to the stomach, we were able to demonstrate that there was no dirrect connection

The method has a limited usefulness i diagnosis, its advantage being that it i readily applied and that within its limitations the information it gives is easil interpreted.

DISCUSSION.

Dr. D. D. Stewart: I have used gastrodiaphany for about a year in quite a larg number of cases. I have found that th introduction of but one or two glasses c water is not sufficient to render the whol stomach translucent. It permits only th lower part of the stomach, that of th greater curvature, to be seen. Heryn and Reichmann advise the introduction c 1000 to 2000 c.c. of water. In this wa the lesser curvature is also outlined. A times you can see a portion of the colo illustrated, the recti muscles, the hypogastric veins, and also the edge of th liver and a portion of the spleen. Th great objection is the difficulty of gettin the patient to swallow the diaphane. On has first to become used to the tube. Fc gastrodiaphany to be of any diagnosti use it is necessary to introduce so muc water that it causes great discomfort to th patient, and often vomiting, necessitatin prompt withdrawal of the instrument.

Dr. Frank Woodbury: This instrumer was first presented to the German Practtioners' Society, of New York, five or si years ago, and its use demonstrated. has not made very great progress sinc then. If we have to administer a coupl of quarts of water before making the examination the diagnosis of dilatation is already made. Where we suspect a growt on the anterior wall of the stomach it migh be advantageous to use this instrumen I would suggest instead of glycerin as lubricant the use of cacao-butter, which a bland and entirely unobjectionable material.

Dr. Stewart: With reference to lubricant for stomach-tubes I would say that I us nothing save water. Glycerin is unnecessary and cacao-butter is not to b thought of.

Dr. Cohen: Einhorn claims, and I agre that one advantage of his instrument an method over Heryng and Reichmann lies in the small quantity of water necessary. Einhorn has also the priority in th matter, if that is of any consequenc Glycerin is used to lubricate the glass onl and I find it useful and without drawbac of any kind.

Recent Medicaments.

Styrone.—A compound of balsam peru and styrax. Occurs usually in the form of a brown, syrupy liquid, of a pleasantly aromatic odor, and a pungent, biting, persistent taste; also crystallizes, but the crystals have no advantage in use over the liquid, and costing many times as much as the liquid, the latter only is supplied. Antiseptic, deodorant, analgesic. Makes a pleasant deodorizer, in solution, used as a spray in the sick-room; likewise an agreeable mouth-wash, to neutralize tobacco and other odors, and is a valuable antiseptic for dental practice. In 1 to 5 per cent. solutions it furnishes a strong antiseptic for surgical use, dissolved in olive oil, or mixed with ointment bases; it has also a record of excellent service in treatment of otorrhea. Styrone is not in general use, and is apparently unknown to most practitioners; but its friends are enthusiastic believers in its value.

Salocoll.—A chemical combination of phenocoll and salicylic acids; in other words, the salicylate salt of phenocoll. White powder; odorless and tasteless; only slightly soluble in cold water. Salocoll is a reliable antipyretic, antineuralgic and anti-rheumatic, combining the favorable actions of its constituents, and is remarkably free from the by-effects usually common to the new antipyretics. Clinical reports are encouraging, and attest the absence of gastric disturbances, nor is any alteration in blood-pressure induced. The dose is 15 to 30 grains, in powder or capsules, washed down with a swallow of water, to be repeated three or four times per day; for children the usual subdivisions of dosage, and reports confirm the special adaptability of the drug for young people.

Rubidium-Ammonium Bromide. $RbBr(NH_4Br)_4$. A double salt of rubidium, introduced as a substitute for potassium bromide. A white, crystalline powder, having a cooling, saline taste; readily soluble in water. Used as a hypnotic and sedative, with special recommendation in treatment of epilepsy. Dose, 1 to 2 drachms, in divided doses, best given in mixture with syrups flavored with lemon or orange. It has not been adopted generally, although endorsed by good authorities, and is comparatively little known. Literature very scant, and no mention of the remedy found in any lately issued standard works.

Gallanol.—An anilid of gallic acid, prepared by boiling tannin together with anilin. A gray powder, subject to change of color or exposure to air and light. An antiseptic for skin affections, introduced recently by Cazaneuve and Blanc. It has been reported as specially useful in squamous eczema and in psoriasis, applied as pure powder alone, or mixed with talcum or in ointment form; the ointments preferred are with vaseline or bassorin paste, in proportion of 1 to 4, 1 to 10, or 1 to 30. It is also applied suspended in chloroform. Gallanol is intended to replace pyrogallol, having the advantage of freedom from toxic and irritant properties.

Formanilid.—($C_6H_5NH.CHO$).—Closely allied to acetanilid, as the chemical formula indicates. Occurs in long, prismatic crystals; odorless and tasteless; soluble in water, alcohol, etc.; melting point, 114.8° F. Introduced only recently, and intended to prove a superior substitute for other products of the same class. Antipyretic, analgesic, anti-nervine, anti-neuralgic, hemostatic and anesthetic—quite an array of properties; it is said to combine the actions of acetanilid, antipyrin and cocain. The dose is 3 to 10 grains, in powder or suitable solution. As an anesthetic 20 per cent. solutions are used, and the effect is said to last much longer than with cocain, although not quite as satisfactory. Literature, outside of the enthusiastic introductory reports from Buda-Pesth is yet scant.

Current Literature.

ACTION OF DRUGS ON NUTRITION.

**** In studying the necessity for promoting the nutrition in the various diseases, we naturally turn for our aids to hygiene, dietetics and materia medica, and the last of these factors is the one that will claim our attention for a short time. In the following classification of drugs according to their effect upon assimilation, I have largely followed Lauder Brunton.

For the object of this paper, it is necessary to note the action of the digestive system and on the general nutrition, of only such drugs as are in most common use. The drugs which act on the digestive system must first be roughly divided into those that promote absorption and digestion, and those that delay absorption and digestion; generally speaking, the promoters and interferers of nutrition.

First, the promoters of digestion. These are Sialagogues and the promoters of amylolytic action; gastric tonics and promoters of proteolytic action.

Sialagogues: It must be remembered that anything masticated or even turned over in the mouth, will cause an increased flow of the saliva, and that the amylolytic process goes on in the stomach until free hydrochloric acid, or a large amount of acid peptones is formed. Hence amylolytic action may go on in the stomach (according to Professors Chittenden and H. E. Smith) for from thirty to sixty minutes or more after food has been taken; hence diastase of malt, or anything that increases the flow of the salvia, will aid the digestion of the starches in the stomach until free acid is formed. Among the stimulants to the flow of the saliva may be mentioned: pilocarpine, physostigma, ipecac, all compounds of iodine, mercury in all forms, acids, alkalies, pungent substances, such as tobacco, rhubarb, cubebs, and most nauseants.

The iodides, potassium iodide especially, are, after ingestion, in considerable part secreted in the saliva, are again swallowed, and so keep on in continuous round, being thus constantly present in the saliva for some time after the dose was taken.

ACTION OF DRUGS ON THE STOMACH.

In considering the action of the drugs upon the stomach, three factors must be borne in mind, viz: the action on the secretion, on the movement of the stomach, and on the absorption. Any gentle mechanical or chemical irritation causes the flow of the gastric juice. Soups, toasted bread, and the first peptones formed, are stimulants to the gastric secretion. In atonic dyspepsia, the meal should not be commenced with a copious draught of tea, coffee, or water, as is so often done, but with some solid food. A dilute alkali, as Vichy, or other alkaline water, or even a small amount of the bicarbonate of soda, taken just before meals, is a powerful promotor of the acid secretion, which secretion is soon sufficient to render the whole stomach contents strongly acid. An increased flow of saliva acts in the same manner as any other alkali, and this normal gastric stimulant should be encouraged by properly masticating the food. In small amount, alcohol is one of the most powerful stimulants of the gastric juice, its slight delaying action in digestion being much more than overcome by the increased flow of gastric juice.

The vegetable bitters are beneficial in dyspepsia, both increasing the appetite and the flow of the gastric juice. Strychnine also increases the appetite. Jaborandi and ipecac increase the flow of the gastric juice. Nux vomica and most bitters, also physostigmin and digitalin increase the stomach contractions. The carminatives, tartar emetic and apomorphine also modify and increase the stomach movements, the latter even without causing vomiting.

The Interferers of Digestion: The drugs which diminish the secretion of the saliva, anticaliacs (Brunton) are principally borax and potassium chlorate by relieving irritation, physostigma, in large doses, by lessening the blood-supply to the glands, but above all, atropine, which paralyzes the peripheral terminations of the secreting nerves.

According to Professor Chittenden, nearly all of the metallic salts diminish the proteolitic action of the gastric ferment quite decidedly, even a few hundreths of a per cent. as a rule, producing a noticeable effect. Such are copper sulphate, lead acetate, corrosive sublimate, mercuric iodide, zinc salts, manganese and iron, all more or less retarding the digestive power of pepsin.

Iron salts retard the action of the ferment much more than the corresponding salts of manganese. Calomel has no action on the ferment. This above action, Professor Chittenden says, is due in part to a direct action on the ferment, and in part to a combination formed by the metal with the proteid to be digested.

Arsenious acid increases the proteolytic action of the pepsin, and thus increases nutrition. Potassium permanganate greatly slows and diminishes the proteid digestion, as do also potassium chlorate, borax, sodium chloride, potassium chloride and ammonium chloride. Sodium chloride in small amount, however, has a noticeable accelerating action on the ferment. The sulphates of magnesia and soda likewise retard the action of pepsin, even .005 per cent. having a noticeable effect.

Nearly all the alkaloid salts have more or less of a retarding action on pepsin. Thus strychnine, morphine, quinine, cinchonine and atropine sulphates all reduce the action of the ferment, morphine sulphate less than the others. Professor Chittenden says, as sulphates retard the action of pepsin more than nitrates, and the latter more than chlorides, the inference is clear, to use where we can the chlorides of the alkaloids. In large amount, beer, wine and stronger spirits all retard the peptic digestion, and even sugar, both cane and grape, temporarily retards the pepsin digestion. Soda water, carbonic acid water, moderately strong infusions of tea or coffee, and water in ordinary amounts, were all found to have no appreciable influence on gastric digestion.

Sodium salicylate, in full doses, retards pepsin action greatly. Chloral hydrate in dose of one gram does not retard, but in larger doses it does retard digestion in the stomach. Antipyrin and antifebrin both retard the pepsin digestion. The stomach movements are lessened by chloral, urethan, morphine and by large doses of arsenic, nicotine and pilocarpine. (Brunton.)

The secretion, peristaltic action and absorption from the stomach are all greatly influenced by the conditions of the circulation, and no factor affects the circulation of the stomach as much as a retarded flow in the liver. All of the venous blood from the stomach must go through the liver and an obstructed flow there, either due to organic liver disease or passive congestion, or hyperemia from valvular cardiac disease, retards the flow of the venous blood from the stomach. Consequently there is impaired absorption from the stomach, and sooner or later a chronic gastritis, with its attendant mucus and diminished secretion of gastric juice, appear. In this condition purgatives and cholagogues, by clearing out the intestines and stimulating the liver, act indirectly as gastric tonics. Excessive acidity may be present in the stomach, intestine or urine, and require treatment by either direct or indirect antacids.

Action of Drugs on the Intestines.

A trace of peptones (Brunton) in the blood, supplying the intestine, nicotine, physostigma, ergot, cocoa, cocaine, and strychnine, all cause increased peristalsis. Lead also causes increased peristaltic action, and the colic due to it has been thought to be a spasm of the intestine. But, according to recent investigations made by Professor Bokai of Budapest, the constipation and colic due to lead poisoning, is due largely to diminished intestinal secretion. Atropia diminishes the intestinal movements. Opium causes a cessation of peristaltic action and checks the secretion in the intestines. Ipecac probably increases the intestinal secretion. It has been suggested that diarrhea, many times, may be due to diminished intestinal absorption, and the indication for treatment would be to increase the blood-flow. Calomel does not affect the pancreatic proteolytic ferment, but prevents the formation of putrefactive products, as indol, scatol, etc., although leucin and tyrosin, which are normal products of pancreatic digestion, are still formed.

Salicylic acid and salol probably act in the intestine, as does the calomel. Calomel is passed into the intestine unchanged, but is decomposed by the alkaline juices and dissolved by the fatty matters there present. At times a small amount of calomel may, in the stomach, if an excess of hydrochloric acid is present, be converted into corrosive sublimate. Hence it is best to combine the calomel with sodium bicarbonate.

Action of Drugs on the Liver.

In considering the action of drugs on the liver we must make a distinction between hepatic stimulants, or the promoters of the secretion of bile, and cholagogues, or those drugs which remove the bile from the body. Briefly, hepatic stimulants are: Ingested food, aloes, corrosive sublimate, salicylate of soda, euonymin, podophyllin, colocynth, ipecac, and, probably best of all, fresh nitro-hydrochloric acid. The glycogenic function of the liver is destroyed by phosphorus, arsenic and antimony, if taken in sufficient dose or for a long time. These drugs also tend to produce a fatty degeneration of the liver. Rhubarb, iron, copper, and manganese appear in the bile, and probably all heavy metals pass chiefly out of the body by this channel. (Brunton.)

To get good results from a hepatic stimulant, we must follow it up with a saline purge, else the bile remains in the intestine long enough for some of it to be re-absorbed. Active purgation may reduce the amount of the secretion of the bile, by removing it so rapidly from the intestines that no bile is re-absorbed.

Ipecac, by lessening the tenacity of the mucus in the gall duct during duodenal catarrh, tends to aid the flow of the bile, and thus abort a jaundice. At the same time the ipecac stimulates the hepatic secretion, and thus increasing the pressure behind and lessening the pressure in front, aids the flow of the bile in the right direction. Atropine diminishes the secretion of the bile.****

Oliver T. Osborne, M. D.

(Proceedings Conn. Med. Society.)

TYPHOID AND TYPHO-MALARIAL FEVER.

There may be such a thing as typho-malarial fever, but no man has ever, as yet, demonstrated its existence. To-day there are three theories concerning the causation of typhoid fever:

1. The German theory, that typhoid is caused by a certain germ; that it is a specific disease, the same as smallpox. One of the definite characteristics of the germ is that it will grow upon a potato, forming an invisible growth. The Koch-Eberth germ is the only germ capable of causing typhoid fever.

2. Another theory we may designate as the French theory, which is that the cause is a modified form of the bacillus *coli communis*, which sometimes acquires extraordinary virulence. If the French theory is correct, the pollution of water with any fæcal matter may cause typhoid fever. If the German theory is correct, it would be perfectly safe to drink all the fæcal matter you wish, provided it comes from healthy persons.

3. There is another theory, and that is that typhoid fever may be caused by any one of a number of germs, which are closely related to one another, but which are not connected either morphologically or physiologically, and conse-

quently we cannot expect the symptoms to be the same in the cases.

For the last twelve or fifteen years I have, on account of certain official positions, investigated every outbreak of typhoid in the State of Michigan, and for the last six or seven years I have accompanied these with a bacteriological examination, both of the drinking-water supply and, for the last two or three years, of the spleens of the persons dead from typhoid fever. While I have seen thousands of cases of typhoid fever, I have yet to see a case of *typical* typhoid fever, as described in the text books, where the temperature is graded day after day. Of course, in many of these cases the temperature is interrupted by the treatment. Further I have never, as yet, found in the drinking-water, or in the spleen of a person dead from typhoid fever, a germ identical with the supposed specific germ. Occasionally I have found germs which form an invisible growth on potato, but they have been different from the Eberth germ. In a recent outbreak at Ironbrook I inoculated beef-tea, and after twenty-four hours injected it into animals. The germs were then found in the spleen, kidney, and liver. I directed sent to me the spleens of all persons dead from typhoid fever, and in these, which were quite a number, I found the same germs as in the water. I think this pretty positive proof that the germ caused the disease. I think we have a group of causes, just as in the vegetable world we have a number of plants which produce poison, varying in virulence according to the conditions in which the plant grows. Tobacco grown upon different kinds of soil will show changes. Why not germs, which pass through a number of generation in a short time? A woman living in the country does not go from home but dies from typhoid fever. A post-mortem is held, and it is found to be true typhoid fever. Some contend that such cases are caused by infection carried by a tramp with walking typhoid fever, who, visiting the various watering places, infects the neighborhood. There are annually 50,000 deaths in this country of typhoid fever, and 500,000 sick with it. This shows that the germs must be widely distributed. I am sure that healthy individuals aid in distributing the disease.

V. C. VAUGHAN, M.D.

The Medical News.

RUBIDIUM SALTS.

Nearly twenty years ago Dr. Blake advanced the supposition that the intensity of the physiological action of chemical substances increased directly as their molecular weights, but, for the purpose of observing this, it was necessary to divide the elements into groups according to the isomorphism of their compounds. This idea has been slowly gaining strength, and, if substantiated so that the connection between physiological action and chemical and physical properties could be clearly made out, would much simplify the study of pharmacology. Some confirmation is afforded by the recent proposal to substitute rubidium salts for those of potassium, the former being preferable on account of not being open to certain objections which attend the use of the latter, and also on account of increased activity. The molecular weights of rubidium and potassium and sodium are respectively 85.4, 39 and 23, and the electrolytic conductivity of their iodides follows a similar proportion—130.6, 128.5 and 105.7. It is stated in the *Therapist* that these figures represent the actual and relative rapidity with which these iodides are distributed throughout the organism, under the influence of osmotic pressure and electrical currents, and thus afford a direct measure of their chemical activity, as approved by the new general law of Ostwald. The salts of rubidium have hitherto been expensive, but it is said that by a recently discovered process they can be cheaply produced in a pure condition from the Strassfurt potash residues.

Canadian Pharm. Jour., Dec., 1893.

Book Notices.

THE PHYSICIANS VISITING LIST FOR 1894. Forty-third year of publication. Roan, 12 mo. For twenty-five patients per day or week. P. BLAKISTON, SON & CO., Philadelphia. Price, ($1.00).

Lindsay & Blakiston's Visiting List has now been before the profession for nearly half a century, and still commands the attention. The present edition is even more complete than any former one, containing as it does a number of useful tables. It has the metric system of weights and measures, a table for converting apothecaries weights into grams, a convenient posological table and a dose table giving the usual dose in both English and metric system. A brief list of new and important remedies has been prepared by Dr. Dorland especially for this issue; incompatibility is given in condensed shape from Dr. Potter's work on materia medica; there is a very complete list of poisons and the antidotes, along with a list of disinfectants. Dr. Dorland has compiled from Tyson's work a brief chapter on the examination of the urine, and Dr. Gould adds a chapter on the diagnosis and treatment of the simpler diseases of the eye, so that with the usual blank spaces for daily record of attendance, the book will prove an acceptable companian to the busy practitioner. While it will save the physician time, it will also enable him to keep a record of his patients together with treatment, thus avoiding the dangers of neglecting to make the usual charges for professional services.

A PRACTICAL TREATISE OF MATERIA MEDICA AND THERAPEUTICS. By ROBERTS BARTHOLOW, A.M., M.D., L.L.D. Cloth, 8 vo., pp. 820. Eighth edition, revised and enlarged. New York: D. APPLETON & CO., 1893. (Price, $5.00).

The popularity of Dr. Bartholow's work is shown by the successive editions that have been called for since the first issue in 1876. The writer has had occasion to make favorable comments upon the author's work as a critic several times during the past ten years, and he still believes that it is by all odds the best that can be purchased, although, owing to the rapid advances made in therapeutics within the past five years, it is not nearly so comprehensive as was the sixth edition issued in 1888. Since this edition appeared, a very large number of entirely new remedies have been added, and new methods have been introduced which find no place in the present work. This, of course, was scarcely to be expected, as the present edition contains but eighteen pages more than the sixth edition, and but few of the articles have been rewritten. The results of modern studies are conspicuously absent in the treatment of the subject of creosote, which has forged ahead within five years. This remedy is still classed along with carbolic acid, with a decided leaning towards the latter drug, which is a mistake, as creosote has a record of its own, and one, too, which is entirely different from carbolic acid. A cursory examination of the pages, however, shows that this is perhaps the most glaring omission. A comparatively small number of the newer remedies has been touched upon lightly, among which may be mentioned, asaprol, bromoform, chloralamid, methylene blue, strontium and its salts. No mention is made of copper arsenite which has been for the past five years one of the most popular remedies in the treatment of nearly all intestinal affections, more especially those disorders dependent upon derangement of the small intestine. Our author praises ingluvin, especially in the vomiting of pregnancy, although he has only words of condemnation for Bergeon's method of treating tuberculosis by gaseous enemata. Hydrogen dioxide, which in the form of watery solution, has attained such popularity, both in this country and abroad, is dismissed with a few unfavorable comments in the brief space of one-third of a page. The articles upon methylene blue and chloralamid are very good and sufficiently extended for all practical purposes, but it appears that the author has not realized the therapeutic value of trional. It is stated that the dose of tetronal should be considerably larger than that of trional —five to fifteen grains, but the writer's experience shows that trional should be given in doses of about thirty grains in order to secure sleep for a period of from five to seven hours.

The discussions upon the older remedies remain practically unchanged, and we look in vain for any further light upon the physiological actions of them through the more recent investigations concerning the function of the cell. Nevertheless, Bartholow's teachings furnish, perhaps, the best basis for obtaining a substantial knowledge of the physiological functions of the cell and of cell nutrition; but it would be exceptionally interesting to read an account of his belief concerning the influence of some of the well-known remedies in this direction. For example, what further information could he give us in relation to the physiological actions of the sulphides? What reasons could he advance in explanation of the valuable therapeutic properties of calcium sulphide in the treatment of chronic and sub-acute bronchitis, furunculosis and catarrhal conditions affecting the mucous membranes, and in the treatment of skin diseases? We ought to be able to follow such drugs as mercury and arsenic as well as vegetable substances through the system, explaining their peculiar powers and properties at various points, and especially the effects which follow at the points of elimination, along with more specific indications for their employment. But this, perhaps, is asking rather too much until the dawn of the twentieth century.

An appendix contains the metric equivalents from one Troy ounce down, the whole occupying two pages, but no changes have been made in the various formulæ distributed throughout the work. The mechanical execution is first class in every respect, and the book will prove a boon to hundreds of young physicians who will read and ponder over its teachings rather than take up with the numerous new fangled notions which are now knocking at our doors for consideration.

PUBLICATIONS RECEIVED.

The Routine Practice of Administering Ergot after the third Stage of Labor. By T. RIDGWAY BARKER, M.D., of Philadelphia. Reprint, 1893.

The Advantages of Antiseptic Irrigation of the Parturient Canal before and after Labor. By T. RIDGWAY BARKER, M. D., of Philadelphia. Reprint, 1893.

Scabies: Its Symptoms, Diagnosis and Treatment. By J. ABBOTT CANTRELL, M.D., of Philadelphia. Reprint, 1893.

Panophthalmitis — Fatal Meningitis following Enucleation of the Eye. By S. D. RISLEY, M.D., of Philadelphia. Reprint, 1893.

Practical Measures for the Prevention of Tuberculosis. By LAWRENCE F. FLICK, M.D., of Philadelphia. Reprint, 1893.

The early Recognition of Tuberculosis. By LAWRENCE F. FLICK, M.D., of Philadelphia. Reprint, 1893.

Cleft Palate, both Hard and Soft and Hare-Lip. By W. S. FORBES, M.D., of Philadelphia. Reprint, 1893.

Oxalic Acid as an Emmenagogue and Oxytoxic. By HOMER C. BLOOM, M.D., of Philadelphia. Reprint, 1893.

Ye Hot Springs, Arkansas, Picture Book. Issued by the MISSOURI PACIFIC RAILWAY COMPANY, St. Louis, Mo., 1893.

The measured Effects of certain Therapeutic Agents, among which especially are: Lavage, HCl, and Intra-gastric Electricity upon the secretory and motor functions of the stomach in cases of chronic catarrh (glandular gastritis). By D. D. STEWART, M.D., of Philadelphia. Reprint, 1893.

Specimens demonstrating the Operation of Gastro-Cholecystotomy, end-to-end anastomosis of the gut and connecting of the gall-bladder with the alimentary tract, as performed with the Murphy button and by the Maunsell operation. By B. MERRILL RICKETTS, M.D., of Cincinnati. Reprint, 1893.

The Primary Action of the Galvanic Current. It increases the amount of ozone in the blood as shown by chemical tests of blood in the arteries —with our theory of animal electricity. By J. MOUNT BLEYER, M.D., and MILTON WEIL, M.D., of New York. Reprint, 1893.

New Drugs and Pharmaceutical Specialties, embracing new and important remedies. Giving, where practical, their composition, chemical formulæ, solubility, physiological action, dosage, etc., together with indications for their therapeutic administration. By BELCHER HYDE, M.D., of Brooklyn, N. Y.

Miscellany.

REMOVAL.—Dr. Ernest B. Sangree, formerly of 744 South 15th Street, has removed to 2020 Arch Street, Philadelphia.

A CURE FOR SLEEPLESSNESS.—One of the most recent methods of relieving sleeplessness is to raise the head of the bed about twelve inches, or cut off a foot from each of the legs at the foot of the bed.

THE GARBAGE PROBLEM.—A joint committee of City Councils, of the City of Philadelphia, has made a report approving the ordinance providing for the destruction of garbage by the process of incineration, and while this is not a final settlement of the question, the probabilities are that it will lead to something tangible in the near future.

SIR ANDREW CLARK.—The death of Dr. Clark occurred in London on November 6th. For many years Dr. Clark has been a popular physician not only in London and immediate vicinity, but also throughout the world, and the medical profession loses by his death an active and enthusiastic worker. Dr. Clark died from paralysis at the age of sixty-seven years.

DR. JOHN C. PETERS.—Dr. John C. Peters, well known in New York circles and abroad as an eminent bacteriologist, died October 21st, 1893, at his home in Williston, L. I., at the age of seventy-six. Dr. Peters was highly respected, and accepted as an authority in New York, where he had been engaged in the practice of medicine for the past fifty years, from which he retired about eight years ago.

EXAMINATION OF THE BRAIN BY ELECTRIC LIGHT.—A report comes to us from St. Louis to the effect that Mr. Donald H. Farquhar, of that city, has succeeded in so concentrating the electric light that it will illume the brain. The same plan can also be adopted when it is necessary to study the pathological condition in other parts of the body. A small cone of light from an 800 candle-power lamp is made to penetrate the tissues, and it is said that broken bones can be studied and injuries learned that could not be determined by the ordinary methods of examination.

KOCH'S SUCCESS.—The statement comes from abroad that Prof. Koch is making a graat of success by his method of treating tuberculosis, and it is intimated that he will shortly publish a full account of his researches together with the results attained. It is also announced in this connection that although his remedy has been tried in the Charity Hospital and upon private patients, its composition still remains as profound as secret as ever. This report should be sufficient to warn enthusiasts that it would be futile to make an itineracy to the German capitol for the purpose of discovering the secret of the method.

THE SAMUEL D. GROSS PRIZE.—A quinquennial prize of one thousand dollars, provided by the will of the late Samuel D. Gross, will be awarded, January 1st, 1895. The conditions are that a prize shall be granted to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens. Essays to compete for this prize, should be written in English, and forwarded to Dr. J. E. Mears, 1429 Walnut Street, Philadelphia, before the date given above.

A NEW METHOD OF ADVERTISING.—An ingenious electrician has promised the public something which, for the time being, will prove especially attractive. Fences, barns, houses, rocks and trees have been utilized to their fullest extent for advertising purposes, but the new claimant intends to take advantage of an entirely different plan, by utilizing the clouds. Instead of throwing the reflection upon a screen, the letters, a hundred feet long, will be thrown upon the clouds, so that persons within a radius of a mile can read distinctly the latest news in regard to politics, religion, or domestic affairs. No doubt the proprietors of patent and proprietary remedies will be first to take advantage of this novel procedure.

THE EARLY USE OF PETROLEUM.—From a diary kept by one of the surveyors it appears that the first use of petroleum as a remedy in this country occurred in the neighborhood of the head waters of the Allegheny, in the western part of New York about the beginning of the present century. As the oil flowed from a spring it accumulated on the surface of shallow pools, and its medicinal properties were first recognized by the Indians in that section of the country. This oil, which was then known as "Seneca Oil," was collected and dried in the sun, and in addition to its medicinal use it was also employed for mixing the war paint for the tribe. As an evidence of the correctness of this historical fragment, it is said that there is still a section of the country known as Oil Spring Reservation, this location or plot of ground having been given to the Indians.

ACTION OF THE GALVANIC CURRENT ON THE BLOOD. — From an interesting and thoughtful communication, entitled, "The Primary Action of the Galvanic Current," by Dr. J. Mount Bleyer, of New York, we make the following extract:

One of the strong indications of the action of the galvanic current upon the blood is the probability that it facilitates the transfer of oxygen to the tissues in active form, both chemically and physically. By re-arranging the atoms of some of the molecules of oxygen in the plasma, the volume of the oxygen held in solution is reduced, and the oxygen of the hemaglobin is at once transferred to the plasma instead of being doled out as it were to suit the constantly varying pressure changes that go on as the blood completes its circulatory round. This being the case, the transforming process is undoubtedly ushered into existence through the polarizing property of the animal electricity..........

How far chemical change is wrought upon the diffusible solids of the blood by the generation and presence of such an increased amount of ozone, we are unable to make precise answer, and we leave it to the thoughtful observation of those observers who may take interest in our work, and who are blessed with a more acute knowledge of physiological chemistry and a more completely equipped laboratory than it is our good fortune to possess.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, JANUARY 15th, 1894. No. 7.

Original Articles.

NOTES ON RECENT THERAPEUTICS.

By OSCAR H. MERRILL, M. D.

Whoever reads the history of Therapeutics will find there records of much faithful work in many directions—records not infrequently of hope deferred. He will find there also a tolerably full account of human credulity, of human weakness and of human cupidity. The same faulty methods of reasoning are followed century after century. *Post hoc ergo propter hoc*, wrecks as many therapeutists to-day as it ever did, nothwithstanding its fallacies have been demonstrated so often as to make mention of the subject distressing. It might be expected that half educated physicians, without preliminary, scientific training, would fall into this error; but when some of the brightest men in the profession—men who have presumably travelled the paths of logic and induction all their lives, go the same way, it shows pretty plainly what must be the inherent difficulties of the subject; and that for the proper discussion of therapeutic questions, no caution can be quite great enough and no learning quite profound enough.

The list of dead theories and abandoned remedies grows longer each year, and the experience of the past is as little heeded in the medical as in the financial world.

Acuteness of intellect and extent of education can, it seems, no more keep a man straight in medicine, than they can in religion or politics. Men, who for years have been esteemed well balanced authors and practitioners, become "a little crazy" on some one therapeutic measure and enthusiastically advocate its employment in all sorts of unsuitable cases. Good illustrations of this form of mental activity may be be found in the literature of hydrotherapy and of electricity.

Thus, it has been stated that every case of typhoid fever may be made to end in recovery by the proper use of cold baths; and yet this writer knew in how many ways the disease may kill the patient—some of them almost accidental in their nature; he knew that perforation has occurred many days after the disappearance of pyrexia; he knew that in some fatal cases the temperature never exceeded 100° F.

Occasionally such a man after sowing dogmatic statements broad cast for a few years becomes insane enough to be confined in an asylum; sometimes advancing age with its mental deterioration is the evident cause; sometimes these acts are the work of advertising schemers; but generally the explanation is to be found in that mental substratum which permits otherwise sane and well educated persons to entertain monstrous opinions concerning the most ordinary matters.

The best work in Therapeutics is now carried on quietly without brass bands or sensational announcements. A few earnest men in each civilized country are patiently working out the physiological action of drugs, as a basis for a more rational therapy. The significance of much of this work, is not always manifest on superficial examination; but it already forms an important part of our working knowledge, and is gradually crowding out venerable empiricism which has heretofore occupied so prominent a place in medical practice, whether regular or irregular.

Manufacturing Chemists.

No one will deny the value of some of the work done by the manufacturing chemists. Some synthetic compounds have been produced by chemical processes which we should not like to give up, and some improved forms of administering the older remedies are due, at least in part, to their ingenuity. Nevertheless, let any one not accustomed to it read patiently for a few months, the current numbers of half a dozen of what have been called "the minor medical journals," or let a careful inspection of the advertising pages of the major journals be made, and it will be seen that large classes of medical men—perhaps a majority—have been completely deceived by these shrewd fellows. They have reached a refinement and a delicacy in their commercialism which will compare favorably with the court intrigues of oriental countries. Every prejudice, every weakness, every conceit of "the under medical world" is played upon with consummate skill and with amazing success.

Take, for instance, acetanilid, which, on account for its cheapness has been made to enter into numberless compounds, and every known language is ransacked in the search after new compound names which may be trade-marked. It is not alone the laity that is deceived, but graduates of reputable medical schools are prescribing, and, indeed, dispensing tons of this stuff, and often without knowing its composition.

Animal Extracts.

For thousands of years animal substances of various degrees of nastiness have been used as medicines. In fact some of the darkest chapters of human history are those relating to this subject. Sundry cognate superstitions are extant to this day, even among the nobility of civilized countries. In ancient times weird ceremony and occultism lent their charms to keep up interest in the matter; while in these "scientific times" the influence of a great hyphenated name has rekindled a fire which was merely flickering and which seemed to be in danger of going out altogether.

Since Brown-Sequard made himself young again by his well known treatment of senility great attention has been paid to the subject of animal extracts. From every corner of the earth have come workmen—some of them skilled workmen—to cultivate this promising field. One result of their labor is a mass of literature which contains much that is premature, much that is fantastic, much that is commercial; and it is difficult not to believe that some of it is closely connected with unsoundness of mind.

Another result is the new method of treating myxedema by the administration of thyroid glands—raw, cooked, dessicated, or in the form of extracts. Recently this treatment has been used in several cases with marked success, and already the air is full of rumors. One writer said a few months ago: "The success of this treatment is sure to create a '*boom*' in animal extracts for various diseases." He proved to be a true prophet, and we are in the midst of this *boom*.

It may perhaps be open to question whether there was need of any more "booms." We have had "booms" in tuberculin, in coal-tar, in ovariotomy, if not in common sense. Some of them are still with us, though not in very good condition. After the boomers and the seekers after notoriety have done their worst with animal extracts, the final accounting will probably show some increase of positive knowledge in physiology as well as in therapeutics.

Bacteriology.

Bacteriology having now emerged from noisy babyhood into promising youth, it may not be amiss to ask how far therapeutics has been advanced by its discoveries and what the outlook is for the future. It has been alleged by some clinicians that the bacteriologists have been a little dictatorial, and have carried on their propaganda somewhat after the manner of the Salvation army. Be that as it may, the amount of conscientious and unremunerated work which has been devoted to the subject during the past twelve years is probably beyond the power of conception of any one man.

In spite of numerous mistakes, exaggerations and ludicrous attempts to re-organize therapeutics the bacteriologists have made great additions to our knowledge. The question of bacilliary disease is, however, enormously complex, and can not be settled by a few cultures and a few hasty deductions. Points that were supposed to be settled a few years ago are now under discussion again, and with regard to many of the problems it is still impossible to say just where the truth lies. Many thoughtful men have lately been turning their eyes from the microscope toward the bedside, and are asking themselves whether after all the condition of the soil is not fully as important as the germs which grow there, and they are consequently spending less time searching after germicides. One eminent physician predicts that the very language now used will be unintelligible jargon to future generations of germ seekers, and that the whole subject will have to be recast. Whether this be too strong language or not, it is doubtless true that we are, as yet, only on the threshold of this department of science, and that exact truth can be established only by a closer union of clinical medicine with bacteriological studies. The success of modern methods of preventing disease and the comparative failure of antiseptic and germicidal remedies in the treatment of well developed disease show that the human body is more than a test-tube, even though numerous theories have been tested therein to the discomfiture of the testers.

CREOSOTE.

Creosote still refuses to move on into obscurity with the numerous "cures" for consumption which have recently made their exit from the therapeutic stage. On the contrary it is used to a greater extent than ever before, and the testimony as to its value gets stronger each year. It is interesting to note here that a writer who is by many regarded as the leading American authority on therapeutics feels justified in ignoring the whole matter in the last edition of his work recently published. Such is the perversity of the human mind—or at least of his human mind.

In giving creosote, it will be found that most patients take it in the form of sugar-coated pills more readily than in capsules or liquid mixtures. This statement is deliberately made after thoroughly trying every known method of administration in a large number of cases during a period of eight years.

Patients who have sensitive stomachs can frequently take, at first, only one or two minims per day; but by slowly and carefully increasing the dose, they eventually consume twelve to fifteen minims each day without suffering from gastric irritation.

The success of the creosote treatment is seen most plainly in those patients who have taken it uninterruptedly and in full doses for several years. Many of these people improve in health from year to year, without, however, losing all their symptoms.

COAL TAR.

It has sometimes been claimed by metropolitan physicians that the rural brethren are slow to avail themselves of the various discoveries in medicine and surgery, and that they go on very much as their grand mothers did. Here as elsewhere in the universe there are compensations. Your country doctor can now look back a little, and with regard to many of the startling advances of these latter years he can see that the "advance" has been backward; and he is not quite sorry that his bucolic inertia has kept him from doing urban oöphorectomy upon all his hysterical female acquaintances.

On other occasions he accepts the dicta of the medical centers with alacrity, and refuses to be called off when the fashion changes. This was seen in the case of coal tar. No sooner had the chemists, private docents, assistant physicians, and royal and imperial professors of Germany and Austria, announced the mighty powers of antipyrine, than he began to employ it, and a little later its congeners, to drive fever and pain out of the world.

In many a remote country village this policy is still followed so vigorously that fever patients are kept blue and sometimes black by frequent and heroic doses of coal tar; and yet the great majority survive in spite of the disease and the antipyretic.

Very lately a rampant enemy of coal tar wrote: "While in the medical centers the coal tar antipyretics are being reluctantly abandoned, it will be long ere less enlightened rural practitioner will let this comforting drug slip from his fond grasp."

Here then we have the two extremes; and here again sound practice lies about midway between them.

These antipyretics when used with skill and caution can be made, in many cases, to replace with advantage, morphine on the one hand, and cold baths on the other, Surely, medicines capable of playing such a part in therapeutics, deserve careful consideration.

245 Prospect Ave., Mount Vernon, N. Y.

EFFECTS OF MORPHINE ON THE FEMALE ORGANS.—In a paper recently read before the Obstetric Society of St. Petersburg, Passower related the history of two cases, which confirms the opinion already supported by the observation of others, that the long continued use of morphine eventually leads to atrophy of the female generative organs. In both cases amenorrhœa was present; intra-uterine measurements taken during a period of two years showed a diminution in the size of its cavity from 5.1 to 1.9 inches.—*Exchange.*

ACTIONS OF DRUGS ON THE INTESTINES.

By W. C. CALDWELL, M.D.,
Professor of Materia Medica, and Director Pharmacological Laboratory, College of Physicians and Surgeons, Chicago.

Concluded from page 164.

METHODS OF EXPERIMENT TO DETERMINE WHERE A DRUG ACTS TO PRODUCE CATHARSIS.

(*D*) *By introducing a rubber balloon, to which is attached a graduated rubber tube, through a gastric fistula into the small intestine, and measuring rate of descent and force carrying it onward to anus.*

Technique of the experiment.—Dogs are suited for this. Hess in his experiments used the animal immediately after making the fistula; Brandl and Tappeiner waited for the fistula to heal, and used the same dog a number of times, usually waiting two weeks before using him again, so that he would completely recover from the previous experiment. The balloon is introduced into small intestine and then moderately distended with water through the tube. After it has passed some distance below the pylorus, the cathartic is injected through the tube, the instrument being so constructed that the medicine passes into the intestine just above the balloon; ferrocyanide of potassium is added to the solution so as to tell by its reaction with chloride of iron whether the cathartic solution is in the feces. This method causes no shock and is superior to opening the abdomen to determine peristalsis.

By this method can be learned:

(1) *The location of the peristalsis.* This is done by examining the graduated tube and noticing how many feet been drawn in. If after the cathartic has been introduced above the balloon it does not increase the rate of descent till it reaches the colon, it shows that the drug acts on the colon instead of the small intestine; aloes is an example of this. If it increases its descent in the small intestine, it shows

that the drug acts on the small intestine. If the drug greatly increases its speed in both small and large intestines, then the drug stimulates peristalsis through the whole length.

(2) *The rate of the peristalsis.* This is learned simply by noticing how fast the graduated tube is drawn in.

(3) *The time of peristalsis.* When the tube is not being drawn in there is no peristalsis, at least where the balloon is; when the drug acts on the small intestine the peristalsis occurs early; and when on the large intestine, late.

(4) *The force of the peristalsis.* This can be measured by pulley and bag of shot attached to the graduated tube. Of course it is necessary to learn first the lifting power of the peristalsis in the same dog without a cathartic.

(5) *By injecting a solution of the cathartic into a ligatured loop of intestine in the living animal.* It is better to use a rabbit or dog that has been starved for several days so that the intestine will be empty. After several hours remove the loop and measure the amount of liquid. If it is increased the drug stimulates secretion. It must not be forgotten that the irritation of the ligature stimulates secretion, so it is better to have a similar loop for comparison.

(6) *By injecting an equal quantity of water in two similar loops of intestine in the living animal, and then injecting the cathartic into one of them.* Use a starved animal. After several hours remove the loops and measure the quantity of water in each, if the one containing the cathartic has not diminished as much as the other, then it diminishes absorption.

We have now learned how to determine when there is increased peristalsis, and where it is; when there is increased secretion, and when there is diminished absorption. We have next to try to learn the exact manner in which these are produced, but this is far more difficult:

(*a*) Because the nervous mechanism of the intestines is very complicated, and at present not very much of its physiology is known.

(*b*) Because instead of the nerves with different functions having a separate course, they are all in the same sheaths, so that one kind of fibres at a time cannot be cut. The vagus contains motor, inhibitory motor, sensory, etc., fibres, so that when one is cut all must be cut. The same is true of the splanchnic.

(*c*) Because if a drug appears in the urine, sweat, or milk, it is no proof that it acts in the circulation; for it may act locally, then afterwards be absorbed, but have no action on the intestinal mechanism.

(*d*) Because if a drug cannot be found in the urine, sweat, or milk, it is not proof that it does not act in the circulation, and then afterwards be entirely excreted by the intestinal mucous membrane and pass out with the feces.

(*e*) Because when a drug, given hypodermatically, purges, it is not proof that the drug acts as a cathartic in the circulation, and that it does not act locally, for it may be inactive till it is excreted by the intestinal mucous membrane, and then act locally.

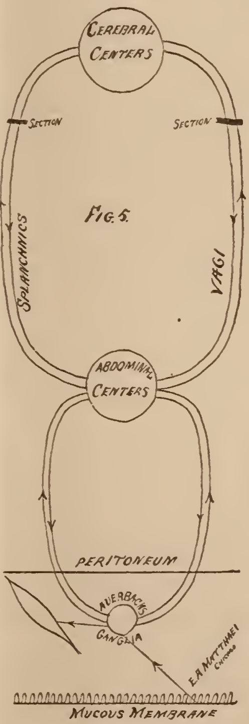


Fig. 5.

At present I will speak of peristalsis only. Perhaps as good a way as any to proceed, though unsatisfactory, is, first, to exclude the brain, and then, second, the abdominal ganglia, and then, third, experiment on the excised living intestine.

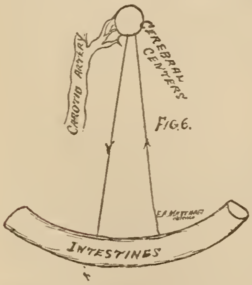
(1) Exclude the cerebral centres by cutting the vagi and splanchnics. This is shown in the schematic drawing Fig. 5, in which, for

simplicity, one circle represents all the centres in that location. It must not be forgotten that cutting splanchnics affects the intestinal vessels. It is evident that after cutting the vagi and splanchnics the cerebral centres can have no influence on the intestines. After cutting these nerves, give the cathartic:

(*a*) If it does not act as a cathartic, this shows that it acts upon the intestines entirely through the cerebral centres, which now have no influence upon the intestines. This action is probably direct and not reflex.

(*b*) If it acts as a cathartic equally as efficient as it does when the nerves are intact, this shows that it does not act as a cathartic through the cerebral centres. The action is either on some of the abdominal ganglia, or on the local intestinal mechanism.

(*c*) If it acts as a cathartic, but much weaker than when the nerves are intact, this shows that it acts both upon the cerebral centres and also on some part of the remaining mechanism. This action on the cerebral centers may be direct, or it may be reflex from irritation of the intestinal mucous membrane. So far as I have read, no experiments have been made to determine when the action is direct and when reflex. It seems probable, though, that something might be learned about it in the following way, which is illustrated by Fig. 6. Select two similar starved animals; open abdomens of both and expose one carotid artery in one of them. Inject a solution of the cathartic in the exposed carotid and an equal solution in the exposed intestinal loop of the other animal. Place animals in salt solution in tin vat so as to observe through incision the intestines.

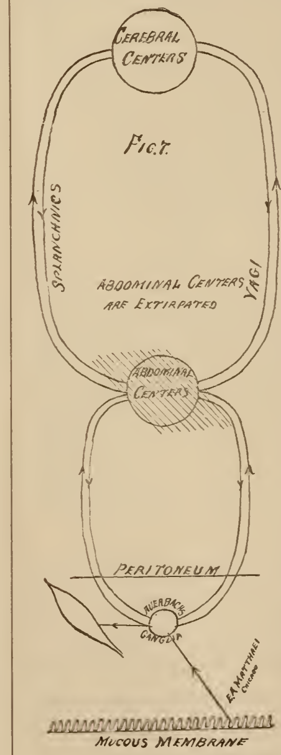


(1) If the drug acts reflexly by irritation of the intestinal mucous membrane, it will act quicker in the animal in which the drug was injected into the intestinal canal (see Fig. 6), because it is there to begin action at once, while in the other it must first be excreted into the intestinal canal. The intestine can be observed easily in the salt solution.

(2) If the drug acts directly upon the cerebral centres, it will act quicker in the animal in which it was injected into carotid artery, because in the other animal it has to be absorbed and diffused through the general circulation before it reaches the centre. Clamping the aorta would make this more accurate were it not that the intestines are so easily disturbed by changing the circulation.

(3) Exclude the abdominal ganglia. This can be done either by extirpating the ganglia, or by using a piece of excised living intestine. (Fig. 7 represents the abdominal ganglia concerned destroyed.) After extirpating the ganglia, and performing tracheotomy, and injecting the cathartic into the small or large intestine, place the animal in a physiological salt solution in tin vat, and observe the action of the drug. This experiment is not very satisfactory, because the vessels are greatly dilated.

(*a*) If the drug does not excite peristalsis, this shows that it acts through the abdominal or cerebral centres. This action may be direct or reflex.



(*b*) If the drug excites equally as strong peristalsis as are produced when the ganglia are intact, this shows that its action is not on the abdominal ganglia but on the intestine.

(*c*) If the drug excites weaker peristalsis, this shows that it acts at both places. This may be direct or reflex.

If it is decided that the drug acts on some part of the intestine to cause the peristalsis, two methods may be used to determine what part it acts upon:

1st Method.—After performing tracheotomy, opening adbomen and destroying abdominal ganglia, place the animal in a tin vat containing warm physiological solution. The first thing is to find out:—

(1) Whether the cathartic acts reflexly by the irritation of the mucous membrane being transmitted to Auerbach's plexus, and from there to the muscles, or

(2) Whether it acts upon some structure in the intestinal wall after being absorbed.

Demonstration.—If it acts reflexly, it will act quicker when injected into intestinal canal than when injected into mesenteric artery. If it does not act reflexly, it will act quicker when injected into the artery.

Next determine where in the intestinal wall the cathartic acts. The points are:

1st. Stimulation of the muscle.

2d. Depression of the inhibitory motor ganglia.

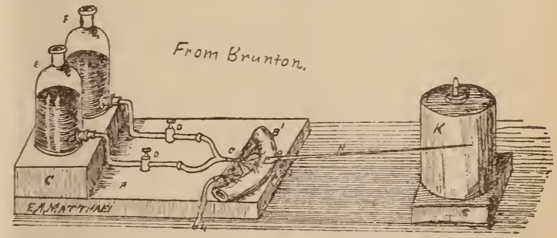
3d. Stimulation of Auerbach's ganglia, and,

4th. Stimulation of the motor fibres.

Demonstration.—If the drug in large dose causes tetanic spasm of the intestinal muscles, which is not affected by electrical stimulation of the inhibitory motor nerves, this shows that the drug acts directly on the muscles. In this way it can be shown how physostigmine acts.

If the drug in large dose increases peristalsis, and electrical stimulation of inhibitory motor nerves has no effect upon it, this shows that the drug paralyzes the inhibitory motor nerves. It can be shown that morphine acts in this way. In fifteen or twenty minutes after giving a dog a grain of morphine hypodermatically, it usually has one movement of the bowels. A small dose of morphine constipates, because it stimulates the inhibitory motor nerves. If the drug increases peristalsis and stimulation of the inhibitory motor nerves lessens the peristalsis, this shows that the drug either stimulates Auerbach's ganglia, or the ends of the motor nerves. By the method above described Jacobi has made some very elaborate experiments with morphine, atropine, muscarine, and physostigmine.

2d Method.—A piece of excised living intestine is placed in a suitable apparatus to keep it moist and warm, and artificial circulation is established by a canula in the artery, connected with two flasks, as seen in the drawing copied from Brunton (Fig. 8), in one of which is pure blood and in the other the poisoned blood, arranged so that either can be turned on at will. The peristalsis is recorded by the lever, shown in the drawing. In this way Ludwig and Salvioli studied the action of a number of drugs.



ACTIONS OF CATHARTICS IN DISEASE.

Cathartics are not only of use to remove feces, but owing to the physiological relation of the intestinal tract to the other organs, thev are often of great service in a number of different pathological conditions. With a knowledge of their mode of action we can select on a rational basis the proper cathartic for the different indications.

Cathartics are indicated:

(1) *To remove dropsical effusions.* In disease of the liver, heart, kidneys, etc., there are sometimes accumulations of serum in the serous cavities and subcutaneous cellular tissue. For this purpose those which stimulate secretion and cause a profuse watery discharge are best suited. When

the effusion is due to obstruction in the liver so that the serum leaks from the congested postal vessels, they are most prompt in action, because they drain the water from the postal vessels and lower the high portal pressure. Magnesium sulphate, elaterium, and gamboge are efficient here.

(2) *To remove urea, etc., from the blood.* Sometimes the kidneys are so diseased that they cannot excrete the waste matter from the body, and its action, when abnormally accumulated, causes serious symptoms. For this purpose use those which cause watery stools, so as to wash the waste out through this channel. If the case is urgent as in uremic convulsions or coma, croton oil is the best to use, because it can be dropped on the tongue and does not have to be swallowed, and, besides, acts in an hour or two. As it is a violent irritant, it should not be continued.

(3) *To lower high systemic pressure.* High arterial tension often increases the disease as sometimes occurs in cerebral hemorrhage, in meningitis, and at the beginning of many acute diseases. Those drugs are of use which cause great dilatation of the intestinal vessels, draining the blood from the other organs, or which cause a profuse watery discharge from the blood. In this way croton oil is of use in cerebral hemorrhage, calomel in meningitis, etc.

(4) *To depress the liver when it is excessively active.* In that condition known as "biliousness," where then is congestion of the liver, and enormous quantities of bile are poured into the intestine, chologogue cathartics are needed, because they remove all this bile from the duodenum, and give the over-active liver rest.

(5) *To deplete the mucous membrane in gastro-duodenitis.* When persons of a certain predisposition over-eat there is congestion or even inflammation of the gastro-intestinal mucous membrane. This extends up the bile-duct, and the swelling occludes it, so that the outflow of bile is obstructed, and soon it diffuses into the blood, and the person becomes jaundiced. The salines, specially sodium salts, are here of use, because they drain away the water without stimulating the mucous membrane, and hence lessen the hyperemia.

(6) *To stimulate the torpid liver.* This is not in biliousness, but when the liver does not secrete bile enough; the patient is constipated, and the stools are too light from lock of bile.

(7) *To remove pathogenetic material from the bowels.* Diarrhea is usually caused by the irritation of toxines formed by the growth of bacteria in the intestinal liquids. In the adult when this is an acute attack, salines are best to wash them out. In the child, when this continues for days, it is better to select those cathartics which are bactericides, so as to kill them, such as calomel and gray powder.

(8) *To remove feces.* This is probably the most common use of cathartics. Those which slightly increase peristalsis and secretion are adapted for this. The drastic purgatives are too strong for this purpose. Among those commonly used are magnesia, sulphur, castor oil, rhubarb, senna, cascara sagrada, jalap, podophyllin, and salines.

(9) *To relieve chronic constipation.* In selecting a cathartic for this purpose we will be guided so far as possible by local conditions. The trouble may be in the small intestine, colon, or rectum. We must decide whether it is due to diminished peristalsis, or secretion, or too rapid absorption. If it is due to a relaxed condition of the muscles of descending colon and rectum, aloes is efficient. If it is due to general relaxation of the intestinal muscles, physostigmine or strychnine may be of use. If there is a diminished secretion or increased absorption the ingestion of more water and foods containing water, as fruits and vegetables, will sometimes be of service.

(10) *To purge the nursing child.*

168 S. Halstead St., Chicago.

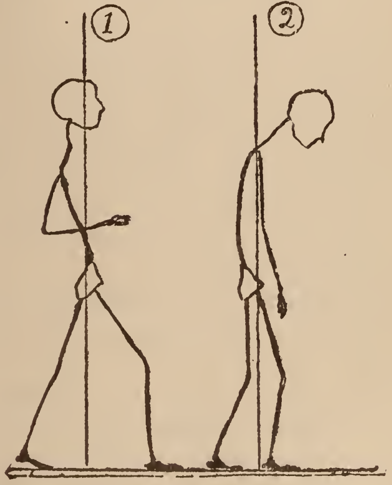
UNREGARDED CAUSES OF ILL-HEALTH IN AMERICAN WOMEN.

By John Ford Barbour, M. D.

That ill-health is more common amongst American women of the middle and higher classes than amongst the women of other nations is proven by a great many considerations. In the first place, we have the testimony of many eminent physicians on this point. Dr. Austin Flint, Sr., is said to have declared that if things went on as they are now going, in fifty years it would be well-nigh impossible to find a healthy woman of American descent. Numerous articles have appeared in the medical magazines by such writers as Dr. Mary Putnam-Jacobi, Dr. Engelmann, and many others, calling attention to the alarming and increasing prevalence of ill-health among American women. We have in addition the testimony of such close and careful observers as our novelists, Howells and James, which is of even greater value, as coming from laymen, who would naturally not be so quick to notice such things as physicians. Howells speaks of the "typical American girl, never very sick and never very well." Do we not all know her? And again and again he speaks of her lack of physical development as compared with her European sisters. James, in one of his stories, describes a little girl who comes dashing into the hotel parlor on roller-skates, crying, "Get out of the way." One can see all too plainly from his description, the typical American little girl, with her weak ankles, her thin, flat chest, her feeble little arms and legs, and her lack of proper parental control. Again, in "*A Bundle of Letters*," he makes one of his male heroines say: "The types here, excepting myself, are exclusively feminine. We are thin, my dear Harvard; we are pale, we are sharp. There is something meagre about us; our line is wanting in roundness, our composition in richness. The American temperament is represented by two young girls. These young girls are rather curious types. They are cold, slim, sexless; the physique is not generous, not abundant; it is only the drapery that is abundant."

The bearing of two or three feeble children ought not to make a physical wreck of a woman; but how often do we see this the case? Compare the American mother—with her sick-headache, her general physical inefficiency, her everlasting doctors' and druggists' bills, and her two or three delicate, bottle-fed children, with the stout, active German or English matron, and her sturdy brood of eight or ten, every one of whom she has nursed at her own breast.

Let the reader take his stand at some fashionable street-corner on a sunny afternoon and notice carefully the women who pass by. Below are given two figures after Lauder Brunton. The first represents the posture of health; the second, the posture of physical degeneracy.



He will find that about seven out of ten of the women who pass him will present the second posture. In addition to this, they will show by their sallow complexions, thin, flat chests, angular figures, and miserable gait, all the evidences of present or impending ill-health. He will hardly find one woman out of ten with bright eyes, a clear complexion, an erect carriage and a firm step.

It is simply impossible for human beings to live as most American women live, and have good health. After a girl puts on long dresses, she is taught that almost any sort of active bodily movement is unladylike. Her frail little body is enveloped in corsets, which effectually prevents the full development of the important trunk-muscles. At school she gets, perhaps, a little make-belief of calisthenics. During her life in society she waltzes with great ardor, it is true, and it is said that to go through all the evolutions of a German is equivalent to a walk of fifteen miles; but no one has ever seriously claimed that this form of exercise is conducive to health. After marrying, the American woman reduces physical exertion to the minimum. Any form of physical labor is regarded by her as menial. If the weather is bad, she will not put her foot out of the house for whole days at a time. If she does go out, often she will take a car to ride two squares.

American women take more drugs than other women. The drug-store is ubiquitous with us. They show increased susceptibility to stimulants and narcotics, sensitiveness of the digestion, increase of near-sightedness and weakness of the eyes, early and rapid decay of the teeth, sensitiveness to heat and cold, tendency to nervous exhaustion etc.

Gynecology and abdominal surgery are American contributions to medical science.

This state of affairs is not limited to any particular section of the United States, but extends from Maine to California, and from Dan even unto Beersheba. It is national in its scope. The fact is that ill-health is so common in our women that we have grown accustomed to it, and have, quite unconsciously, set up a low standard of feminine health. If a woman is habitually constipated, dyspeptic, so weak that she can hardly walk a mile, has one or two headaches every month, irregular and painful menstruation, backache, napeache, cold hands and feet, leucorrhea, capricious appetite, and a moderate degree of nervousness and insomnia, she is considered to possess average good health. If she is free from all these, it is a rare exception, a fortunate accident, not a condition of health to be attained by the exercise of reason and common sense.

What, then, are the causes for ill-health which are peculiar to American women? These may be divided into two classes, *viz.:* The unavoidable and the avoidable. Let us briefly survey the unavoidable causes.

By far the most potent of these is our climate, which differs from that of Europe in three respects; it is more variable; the extremes of heat and cold are greater; and the atmosphere is drier.

The reason for the extreme variability of our climate is found in the fact that our mountain chains run north and south, while those of Europe run east and west. In consequence of this, when up in Manitoba Territory King Aeolus reverses his spear and smites upon the side of the mountain, rude Boreas comes whistling down upon us with hardly a moment's notice, except a hasty telegram from Washington with the familiar announcement that the thermometer will fall forty degrees in the next twenty-four hours. This is followed by nearly as rapid a rise in the temperature.

The extremes of our climate keep us house-bound for a large part of the year, and this is a very potent factor of ill-health. There are few portions of the country where it is agreeable to be out of doors for as many as a hundred days of the year.

The effect of a dry, variable, extreme climate is to stimulate powerfully the nervous system and keep it on the *qui vive.*

The liberty and enlarged scope of thought and action, which American women enjoy, must also be considered as causes of ill-health. How much more nervous energy an active, ambitious, American woman must expend than a German matron, with her placid, narrow life.

There are many other unavoidable causes of ill-health in American women which need not be discussed here; let us rather turn our attention to the more practical consideration of the avoidable causes of ill-health in our women. While there are very many of these, it has seemed to the writer that the following are the principal ones:

1. Lack of general exercise.
2. Lack of specific exercise.
3. Lack of abdominal breathing.
4. Improper modes of dress.
5. Superstition.

As every one is aware, there are three causes for the circulation of the blood.

(*a*) The contraction of the heart;

(*b*) Contraction of the voluntary muscles;

(*c*) The contraction of the diaphragm.

American women attempt to dispense with the last two; they neither take exercise nor do they breathe with the diaphragm. The muscles act precisely like the bulb of a Davidson syringe; when they contract the blood is forced into the veins; when they relax a new supply flows in.

Dubois-Reymond determined by experiment that the minimum amount of exercise, necessary to maintain the circulation, is equivalent to a walk of five miles a day. American women do not average one-fifth of this amount.

The diaphragm acts like the piston of a great pump, rising and falling sixteen times a minute, and pumping the blood out of the abdominal and pelvic cavities. Where its stroke is only one-half or one-third the normal, the amount of blood raised must be correspondingly less. The investigations of Dr. Thos. J. Mays, of Philadelphia, and of Dr. J. H. Kellogg, of Battle Creek, Mich., have shown that women ought to breathe precisely as men do. The thoracic type of respiration in women is entirely artificial, and is not, as physiologists have claimed, a wise provision of nature, having in view the restriction of the movements of the diaphragm during pregnancy.

The second cause assigned for the ill-health of American women is lack of specific exercise. All exercise is not of equal value; exercise of the arms and legs, while of great value, is relatively far less important than exercise of the trunk muscles, for the reason that the circulation through the thoracic, abdominal, and pelvic cavities is dependent upon exercise of the muscles surrounding these cavities. When the trunk muscles are not freely and systematically exercised, the circulation through the lungs and through the abdominal and pelvic organs becomes feeble, and the functions of these organs are imperfectly fulfilled.

We have now arrived at the point where we can trace, step by step, the evolution of ill-health in the American woman. Her undeveloped body is encased in corsets when she is fifteen years old. At school she learns a great many things, but is not taught that in order to have good health she must exercise the muscles of her body, and especially those of the trunk, daily and systematically. After marriage she settles down to a life of physical inactivity; she takes hardly any exercise, and even this little is not taken systematically; she does not breathe with the diaphragm; her circulation becomes feeble, her hands and feet are always cold, the blood accumulates in her abdominal and pelvic cavities, the functions of the abdominal and pelvic viscera are imperfectly carried on; she becomes dyspeptic; her stomach is distended with gas; her liver and intestines are torpid; the waste products of the system are not carried off, but accumulate in the blood. The opinion is constantly gaining ground that most of the functional nervous disturbances in women are due to auto-intoxication.

By-and-by the pelvic organs begin to show signs of disease. When one hears of the daily exploits of the abdominal surgeon, and learns that there is hardly one woman out of five who has not some form of pelvic disturbance, the conviction forces itself upon the mind that surely our women must be grossly violating some fundamental law of health. We have traced out the chain of physical causes which lead inevitably to a stasis in the abdominal and pelvic circulation. As a further result of this stasis there occurs a sagging of the abdominal and pelvic viscera, and as the latter are underneath, they catch the worst of it. Malpositions of the uterus are produced; the power of resistance of the pelvic tissues to invasion by pathogenic microbes is lowered; the tendency to plastic exudations is increased; the resolution of inflammatory processes is very much retarded; and thus the foundation for every variety of pelvic disease is laid.

The last cause assigned for ill-health in American women is superstition—not religious, but pharmaceutical superstition. The sublime faith with which an American woman will continue to swallow nauseous drugs in the belief that they will restore her to health and keep her in health, is only equalled by her faith in cosmetics. Drugs are wonderful things in their place, but it is not possible by any combination of drugs to replace the natural processes of health.

How are we to forestall this most serious of all our national evils, the physical degeneracy of American women? This matter is far too widespread and serious to be rectified by a little Anglomania, a little calisthenics, a little athletic craze. There are far too many women who lead lives that can only be characterized as parasitic; who have no independent existence, but merely cling to life like a polyp to a rock. They generate barely enough nervous energy to eat, drink, sleep, dress, take a great deal of medicine, complain constantly, and finally drop out of life without leaving the slightest vacuum.

The only way to meet this great evil is to introduce physical culture into our schools and make it compulsory. Not until then will our women realize the standard of feminine health as laid down by Walt Whitman:

> They are not one jot less than I am,
> They are tanned in the face by shining suns and blowing winds,
> Their flesh has the old divine suppleness and strength,
> They know how to swim, row, ride, wrestle, shoot, run, strike, retreat, advance, resist, defend themselves,
> They are ultimate in their own right—they are calm, clear, well-possessed of themselves.

Louisville, Ky.

POSSIBILITIES IN THE THERAPY OF NUX VOMICA.

(Second Paper.)

By E. Macfarlan, M. D.

Further clinical observations in the therapy of nux vomica have afforded me an accumulation of evidence of its efficacy in certain and hitherto untried affections of neurotic origin.

Case I.—Was called, about one year ago, to Mrs. McG., age, 36. Found she had just miscarried at about four months pregnancy. The fetus and placenta had been expelled, but owing to inefficiency of uterine contraction, there was profuse hemorrhage; consequently soon after my arrival I found I had to contend with not only hemorrhage, but a grave case of syncope. Her extremities became cold, and the heart-beat was scarcely perceptible; and surely the case was rapidly becoming one of heart-failure. Quick action was necessary, and I at once concluded to test nux vomica, and proceeded immediately to administer one drop doses of the tincture every five minutes. When the sixth dose had been given the radial pulse-wave could be felt, and the heart-beat distinctly heard. After five more doses the pulse was nearly normal; warmth of body was restored and she was able to converse. Hayden's viburnum compound brought on good uterine contraction, and I succeeded in controlling the hemmorrhage. In a few hours after the first dose of nux vomica I found my patient in such a comfortable condition of reaction that I left for home.

About six months afterward I was called in the early part of the evening to Mrs. McG., who believed she was again pregnant and threatened with miscarriage. She had pain in the back and profuse hemorrhage. I was getting good control of the hemorrhage when syncope set in, and on finding it was becoming protracted and her condition very similar to that for which I had used the nux vomica so successfully, I at once resorted to the same treatment and with the same satisfactory result.—But I must state, she was mistaken as to pregnancy. In the course of that night she passed a very large blood-clot which was the cause of her trouble; it evidently had been accumulating in the uterus through several menstrual periods.

Case II.—In the fall of 1892, I was called to Rose L., (colored), age, 20. Her symptoms at first were of indigestion and sluggish liver, and congested portal circulation; but on further investigation of the case I discovered considerable tenderness over the left ovary. On the third day of my attendance, contrary to my advice to remain in bed and keep quiet, feeling quite comfortable in the afternoon, and getting permission of her mother, she left her bed to sit in an adjoining room. In the early evening of that day I was sent for in haste to see Rose. I found her in a prolonged state of syncope, and her mother was greatly alarmed, fearful she would die. The patient's pulse was small, weak and frequent, and counted 112; extremities cold; she was in a semi-conscious state, and when aroused would reply in a whispering voice, but immediately relapse into indifference to her surroundings. It seemed to approach so nearly to a case of heart-failure that I administered nux vomica in my usual way as to dosage and intervals, resulting within an hour in complete restoration of pulse, warmth of body and consciousness, and my patient became quite cheerful and talkative.

Case III.—C. M., age, 28, had an attack, of acute inflammatory metastatic rheumatism. In the third week of the attack and while the disease was yielding to treatment, he was attacked with an exceedingly troublesome cough, but as he had been confined to his room, and in fact to the bed, by the rheumatism during this time, I was puzzled to account for the cough. Then I began to observe more closely the character of the cough and expectoration. A careful auscultation did not reveal any bronchial inflammation. By closely questioning the patient I found the cough was paroxysmal, and commenced with an annoying tickling in the throat; the cough steadily increased in violence with the return of every paroxysm until it became exhausting, and the patient would feel quite prostrated after each attack. I found also, his most severe paroxysms came on within ten minutes after his evening meal. I accordingly timed my evening visit for observation. I was now satisfied—having watched a paroxysm from beginning to end, which lasted over 30 minutes—that the cough was laryngeal and neurotic.

On examining the sputa it was found glairy and tenacious, and not such as we find in inflammatory conditions of mucous membrane of the air passages. I had given him a mixture which included compound tinct. benzoin and codeine without effect, but now being convinced the affection was of neurotic origin, it occurred to me to make a trial of tincture nux vomica in my one-drop-five-minutes-dosage. I timed my call the next evening so as to be present when the paroxysm of cough commenced. My patient had just finished his evening meal, and we had been conversing hardly ten minutes when the cough set in and rapidly increased in violence, and then came my opportunity for the crucial trial of nux vomica in this case. When I had given the seventh one drop dose the paroxysm began to yield, and by the time we had given the tenth dose it was almost over, the patient having an occasional cough. My patient was very happy over the sudden and unexpected relief afforded by the medicine I had just given him in such small doses, and of course was curious to know what it was. He then told me, these hard paroxysms sometimes lasted up to midnight, and on one occasion it had lasted almost until morning. I left him drops to take in the night in case he should have another paroxysm.

When I reached home that evening I do not think my patient was any happier than I was over my success with the nux vomica in a purely experimental case. The next morning Mr. M. informed me that he had slept through nearly the entire night, which, owing to the cough, he had not been able to do in a week. The patient from that night had no return of severe paroxysm of coughing. I furnished him with fresh drops every day, and he became so well posted in their dosage and use that in a few days the cure of the cough was complete. And I may here add that I have had several similar cases of cough since that, and the nux vomica has succeeded in all. If physicians would more closely diagnose their cases of cough, I will venture to say, there might be discovered more than one case of neurotic origin and laryngeal.

Case IV.—Mrs. L. S., age 40, is of nervous temperament and has occasionally attacks of a mild form of hysteria. About one month ago I was called to Mrs. S., who, I found, had the usual symptoms of "grippe." I treated her accordingly, and she was convalescing nicely. I had made my morning call, and found her doing fairly well—excepting that she complained of a slight shortness of breath. I carefully examined her lungs, but there were no indications of pneumonia. In the afternoon, about 3 o'clock, I received a hurried message to come without delay to see Mrs. S. I found her in a very nervous, somewhat hysterical and desponding condition; her face was flushed, she had distressing dyspnea, cardiac palpitation, pulse 112, small, weak and frequent, which of course was due to the functional cardiac derangement—there being no indication of organic disease. She called my attention particularly to her difficult breathing so soon as I reached herbedside, and begged for relief. I took in the situation at a glance, and wasted no time in thinking of a remedy to meet the case. My previous experience, and knowledge of the efficacious therapeutic action of nux vomica in neurotic affections, prompted its immediate use in this case.

The fifth one drop-five-minute dose reduced the pulse to 100, and in a measure relieved the distressing dyspnea. When four more doses had been given the pulse dropped to 90, and the dyspnea was so nearly conquered that the patient expressed her thankfulness for such speedy relief after a steadily increasing suffering of over four hours. By the time four more doses had been taken respiration was normal and the pulse 84. My medical mission was accomplished, and I left my patient —who was now feeling very comfortable —with instructions to continue the one-drop doses every half hour for four more doses, and then every hour up to bedtime. Next morning she was sitting up in her bed feeling quite comfortable, with respiration normal and pulse 78, the palpitation having entirely subsided. She has had no further trouble up to date.

Case V.—About two weeks after the occurrence of this last, I was called to Mrs. E. C., age 31. I found her suffering from great dyspnea and palpitation. She was also greatly troubled with flatulent dyspepsia and frequent eructations. The difficulty of breathing and the palpitation of the heart had been increasing for several hours, and as it was a new experience in her life, she and her husband became greatly alarmed lest the attack should prove fatal. But I knew my patient, as she had been one of my clientele for many years. I knew she was of nervous temperament and slightly hysterical. I wasted no time, but administered tinct. nux vomica according to my usual plan; the particulars in this case would only be a repetition of others, and it is unnecessary to recite them. The result was an equally happy recovery.

314 W. 126th St., New York.

THE THERAPEUTICS OF STRANGULATED HERNIA.

By W. C. Abbott, M. D.

No doubt some will smile at the above caption, and say: "The idea! Who ever heard of such a thing?" Others will read what follows and, perhaps, profit thereby.

Strangulated hernia is looked upon as, strictly, a surgical affair, only two ways of treatment being thought of, *i. e.*, reduction by taxis or, in case of failure—and if the patient and family will consent, the knife. The former usually fails, and consent to the latter is frequently so long deferred that the result is anything but satisfactory; hence, any measure which is at the same time simple and helpful should be looked upon as a valuable acquisition.

The plan of treatment which I wish to present will best be understood if illustrated by the record of a case in hand. One morning, recently, I was summoned hurriedly to see an elderly German laborer, whose "breach was down," so the messenger said, and it surely was. Such a scrotal display I never saw before; a mass larger than a child's head, and as hard and tense as a foot-ball. I thought, at first, that part of it must be an old hydrocele, but was assured by the sufferer that "him all goes back." This rupture was of some ten years standing. Formerly the hernia was retained with a truss, but of late years it had been allowed to go up and down according to circumstances, never having become strangulated before. Now, my experience has been that when an old man who has had years of practice reducing his hernia fails to put it back, the surgeon has a job on his hands.

In this particular case most of the mass was resonant, but there was a lump the size of a goose-egg, close to the ring, that was hard and gave a perfectly flat precussion note—the omentum—congested by strangulation, the very irritation from which caused a tighter spasm of the muscle-fibres between which the mass protruded. I tried taxis faithfully; so had the old man, and we both failed. I used hot fomentations to no avail; I placed him at an incline of 45° and sprayed the mass with cold water to stimulate contraction of the muscles of the cord. They contracted sharply, but had no effect except to increase his pain. I lowered him to the horizontal position, covered him up with a hot blanket, and sat down to rest.

Here was an old man, hernia strangulated for some two or three hours, a serious case. It was growing worse every moment, and nothing seemed likely to avail but the knife. The spasm was intense. How could I relax it?

I hesitated to try an anesthetic for various reasons, one of which was that *I found a piece of candle burning in a beer mug at the feet of my patient.* Knowing the great value of hyosciamine in spasm of the viscera, I took from my ever-present alkaloidal granule-case hyosciamine amorphous, gr. 1-134, and gave it hypodermatically with morphine sulphate, gr. ¼, and atropine, gr. 1-250. In a few moments my patient said, "that's better"; and in less than ten minutes a gurgling of gas was heard through the mass indicating relaxation of spasm. Thus encouraged I gave a second dose, adding to hyosciamine, gr. 1-250, strychnine arseniate, gr. 1-48, the latter to induce forced peristalsis. In less than ten minutes more, I heard a loud gurgling sound, and my patient cried, "him's gone," and, sure enough, it had. The entire mass had disappeared through a hole the size of a nickel.

A retentive bandage for the time, and a well fitted truss a few days after, completed the treatment of, to me, an interesting case, which leads me to suggest a "therapeutics for strangulated hernia" for your consideration.

2666 Commercial St., Chicago.

PERISCOPE OF THERAPEUTICS.

By J. Lindsay Porteous, M.D., F.R.C.S., Ed.

Methylene Blue.

Recently I have had an opportunity of proving the efficacy of this new solvent, and am much pleased with the result obtained.

During the months of August and September I had five children under my care, suffering from diphtheria. As all the children belonged to one Institution, had the same nurse, and in every way the same surroundings, I had a good opportunity of testing the solvent powers of this drug, as compared with others. In the first child, age 4 years, I used acetic acid spray as a solvent, giving iron and potassium chlorate internally. Although the membranes in fauces visibly shrank, the disease extended downwards rapidly, almost choking the patient. Intubation was resorted to, which for a time relieved the choking symptoms, but the child gradually, sank.

Two more children were seized with the disease and the fauces were painted with sulpho-calcine, a remedy I have used successfully for some years, and corrosive sublimate was given internally. The children improved, but the patches were a long time in shrinking. I applied an aqueous solution of methylene blue (1:9) to the patches by means of a camel's-hair brush, three times a day. The effect was remarkable. Not only did the patches, after the third application, shrink, but the feverishness and restlessness abated. Three days after the commencement of the treatment all the patches in both children had disappeared.

Two more children, aged 5 years and 3½ years, were attacked. As the patches covered the uvula, tonsils and back of the pharynx, and no further down, I thought that I would try local treatment only. After a few days the patches disappeared, the fever left, and the children were convalescent.

Piperazin and Piperazin Hydrochlorate.

I have of late had ample opportunity to test both piperazin and piperazin hydrochlorate as solvents of uric acid. Hitherto I have used the salts of lithium and potassium in the uric acid diathesis, but will now certainly always use the new solvent in preference to either of these. I have taken particular pains to watch the action of the drug—so feel confident in stating that it is the best of known uric acid solvents.

I have never noticed any toxic effects from the use of either preparation, but prefer the hydrochlorate on account of being less hygroscopic, although I believe piperazin can now be procured in lozenge-form in glass tubes, which greatly lessens the hygroscopicity.

I will now briefly give particulars of three cases of uric-acid diathesis treated with the medicine.

The first, a man aged 36, weight, nearly three hundred pounds, suffered much renal pain, with occasional symptoms of small calculi passing along ureter. The urine had very acid reaction. The microscope revealed numerous crystals. The murexide test likewise proved that uric acid was present in abundance. This patient, wishing to become thin, was put on a beef diet, no potatoes, few vegetables, etc., just the diet to increase the uric acid. He was put on the solvent treatment, giving twelve grains, divided into three doses daily. Each dose was given in a tumblerful of vichy water. In a few days the urine became neutral in reaction; the loin-pains left; also the constant desire to micturate caused by the irritation of the uric acid. The beef-treatment was kept up for several weeks and the weight was reduced by 11 pounds. This case shows that, although no precautions were taken to diminish the formation of uric acid, but the contrary, piperazin was sufficient to dissolve the crystals.

The second case was that of a man aged 50, weight, 215 pounds. He complained of pain, described as "burning" in loins; also a dull ache in bladder, frequent desire to micturate; sometimes urine was mixed with blood. Without altering the diet at all, which was always a liberal one, including beer every day, all the disagreeable symptoms disappeared while taking piperazin hydrochlorate. On several occasions there was a return, in a modified form, of the symptoms, but after a few doses of the drug they always disappeared.

The third case was that of a man 60 years of age, who had for years felt pain in kidneys, along ureter and in bladder, and never got much relief. I prescribed for him 5 grains of piperazin to be taken three times daily in large quantities of water. After a week's treatment the pains had left, and he was better than he had been for years.

Gruber has used it with good results in diabetes. He considers that the action of the drug in this disease is inhibitory to the transformation of glycogen into sugar.

HYPODERMATIC ALIMENTATION.

Caird (*Edin. Med. Journal*, September, 1893) reports a case of extreme weakness and emaciation due to malignant stricture of the esophagus, which was improved by intra-muscular injections of sterilized olive oil. In the course of a week from three to four ounces of oil were injected into the gluteal region. There was no pain or inconvenience caused by the injection. Sugar was occasionally combined with the oil. None of the skin punctures inflamed. There seemed no limit to the amount of oil which a patient can tolerate.

Yonkers, N. Y.

COLD DUE TO BACTERIA.—Bacteria are likely to be blamed for all the ills that flesh is heir to. Prof. Schenck now maintains that what we call a "cold" is really due to these invisible pests. When one enters a cold room after being heated the bacteria in it flock to the warm body and enter by the open pores of the skin. Whatever may be said of this hypothesis he seems to have proved by experiment that bacteria in the neighborhood of a warm body move toward it. The confirmed smoker may derive some comfort from the fact that tobacco is inimical to them.—*London Globe.*

Recent Medicaments.

A DECADE OF NEW REMEDIES.—"There are at least one hundred new remedies of synthetic origin now in general use that were not known ten years ago." So an American contemporary says; but we doubt if anyone can compile a list of one hundred. Who will try ?—*Chemist and Druggist* (London), Sept. 30, 1893. We are not responsible for the original statement; but the invitation is general, and we are anxious that our English friend should have a prompt response from America, so here goes: Acetanilid, agathin, alpha-oxynaphthoic acid, alumnol, amylenhydrate, analgen, antipyrine, antiseptol, antispasmin, antithermin, aristol, asaprol, asepsin, benzanilid, benzonaphthol, benzosol, betol, bromal-hydrate, bromoform, bromol, chinoline, chloralamid, chloral-ammonium, chloralose, chlorphenol, creolin, cresalol, cresin, cresol, cresol-iodide, cresotic acid, diuretin, dulcin, ethyl bromide, ethyl chloride, eugenol, eugenol-acetamid, euphorin, europhen, exalgine, formalin, formanilid, gallacetophenone, gallobromol, gallanol, guaiacol-carbonate, homatropine, hydracetine, hydroquinone, hypnal, hypnone, ichthiol, iodol, iodopyrine, kairin, losophan, lysol, metaldehyde, methacetine, methylal, methyl chloride, methylene-blue, methylene chloride, methyl-violet, microcidine, naphthalene, naphthol, naphtopyrin, orexine, oxychinaseptol, paraldehyde, pental, phenacetine, phenetol, phenocoll, piperazine, pyridine, resorcin, resorcinol, saccharin, salacetol, salicylamide, saliphen, salipyrin, salocoll, salol, salophen, saprol, solutol, solveol, sozal, sozoiodol, styracol, sulphaldehyde, sulphaminol, sulphonal, tetronal, thalline, thermifugin, thilanin, thioform, thiol, thiophen, thioresorcin, thiosinamin, thymacetin, tolypyrin, tolysal, tribromphenol, trional, tumenol, uralium, urethane. This makes 114 new definite chemical products —and the list is not exhausted. It may also be urged that some of these products have been in use longer than ten years. This is the case only with naphthol, which was first recommended as an antiseptic in 1881; but we have omitted several legitimate new naphthol compounds, so that a balance is maintained. Other products, as acetanilid, guaiacol, anilin colors, pental, etc., were known as chemical products; but their medicinal application dates back less than ten years.

Referring to above list, a casual examination shows, that about thirty-three are patented products; between fifty-five and sixty bear proprietary "utility" names (including the thirty-three patented); and about thirty are absolutely free and non-proprietary. We may publish an accurate division with details on some future occasion.—*Notes on New Remedies.*

LLARETA; A NEW ANTIGONORRHŒIC.—Dr. Infante (*Aerztl. Rundschau*). Llareta is the abbreviated name for *Haplopapus Llareta*, a plant growing abundantly in Chili, and with which the author claims to have obtained a radical cure within ten to fifteen days in every case of gonorrhœa in which it was tried. The following is his formula:

Fluid Extract Llareta	1 part.
Distilled water	30 parts.

Tablespoonful twice daily.

—*Amer. Med. Surg. Bulletin.*

DISINFECTIN.—(*Pharm. Zeitschr. f. Russl.*) Disinfectin is the name of a preparation intended for ordinary disinfection, said to be obtained as follows: 5 parts of the residue left in distilling crude naphtha are thoroughly mixed with one part (by volume) of concentrated sulphuric acid, and allowed to cool. The fluid portion is separated from the sediment, and gradually mixed with an equal volume of ten per cent. soda solution, and well shaken. Thus is obtained a yellowish-brown emulsion,—disinfectin,—which, when intended for use, is diluted with four parts of hot water, and thoroughly shaken.—*Amer. Med. Surg. Bulletin.*

HIPPURIC ACID AS A DIURETIC.—This acid, obtained* from the urine of the cow, is a favorite diuretic with many French practitioners. Dujardin-Beaumetz prescribes it combined with lime:

℞ Hippuric acid .... 25 grammes
Milk of lime sufficient to neutralize it.
Simple syrup .... 500 grammes
Essence of lemon to flavor.

Four to six tablespoonfuls daily. As before mentioned it is excreted in the urine as benzoic acid.—*Provincial Medical Journal.*

THYMOL IN TOOTHACHE.—Dr. Hartmann (*Deutsche Med. Wochenschrift*) has employed thymol in toothache from hollow teeth, in place of arsenious acid. He fills the cavity of the tooth with a tuft of cotton on which a few crumbs of thymol have been sprinkled. It does not irritate the mucous membrane of the mouth much, and it is easily removed by rinsing the mouth with water. If a rapid action is desired let the patient rinse the mouth often, with warm water, in order to facilitate the solution of the drug. It never increases the pain at first, as arsenic does, and is not poisonous.—*Lancet-Clinic.*

CHLOROFORM NARCOSIS.—Resultation in chloroform narcosis has been accomplished by a new method devised by Maas, one of Koenig's assistants of Goettingen. In the first case, the ordinary means of resuscitation had been tried for an hour without effect: respiration and pulse has entired ceasec. Maas then made rapid ryithmical compressions, about one hundred and twenty per minute, of the cardiac region, whereupon the heart's action gradually increased and the patient recovered. In a second severe case responded with the same result to the treatment. Maas ascribes the effect of the cardiac compressions to the driving of the blood into the larger arteries.—*Chicago Medical Recorder.*

---

* The source is not quite so accurately known; hippuric acid is eliminated with the urine in human subjects as well—after the administration of benzoic acid. For an interesting compilation on this point, see Wood's Therapeutics, page 642.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. JANUARY 15th, 1894. No. 7.

Editorial.

INFLUENZA AND ITS TREATMENT.

The manifestations of Influenza in this section of the country during the past two months have been numerous and varied, although the malady has been far less directly fatal than on its first appearance in the winter of 1889–90. The different types of the disease, the pulmonary, the nervous and the abdominal, have been less distinctly marked, but it has been especially severe in the case of elderly people when appearing as an intercurrent affection. Another noticeable feature is, that the disease has shown a greater disposition to attack children than in former years, although when children have been enjoying usually good health, fatal results have been rare. This, however, has not been the case with sickly or puny children, as the disease has manifested itself in various ways, such as throat, ear and other complications. In many cases nothing more than the peculiar pains characteristic of the disease have been noticed; in others, it has passed off with nothing more serious than would result from a bad cold, so that large numbers have fought it out on this line. The prevalence of the malady in the vicinity of Philadelphia, and we presume this observation holds good elsewhere, has been wide spread, showing conclusively that it is largely dependent upon atmospheric influences. Indeed, up to the present writing, the condition of the weather has been extremely favorable to the development of influenza, and we all hope that better weather during the remainder of the winter will tend to check its spread.

Judging from published reports, the treatment of influenza during the present epidemic has been mainly symptomatic, simple remedies being employed in place of the powerful antipyretics and analgesics that were so extensively used three years ago, and this may account in part for the reduced mortality. In this connection the writer ventures to suggest the use of a limited number of remedies that have proven of signal service within the past two months. In the pulmonary type, to relieve the distressing and frequent cough, nothing has given better results than morphine hydrochlorate and pilocarpine hydrochlorate, given hourly in doses of one-fiftieth of a grain each, together. This combination seems to allay sufficiently extraneous irritation, while it favors the re-establishment of the normal secretions, and has shown remarkably favorable effects when broncho-pneumonia threatened to supervene. Given in these small doses, it produces neither narcotism nor depression, and the patient is ready to take his regular meals, to which is added liquid nourishment during the intervals. Hot milk—not boiled—and the free use of beef-tea made from a good extract of beef, are helpful in assisting to maintain the strength. In the abdominal type, with much pain along with mucous discharges from the bowels, showing involvment of the liver, a combination of mercury biniodide with codeine sulphate appears to control and modify the progress of the disease. One one-hundredth grain of the former with one-tenth to one-fifth grain of the latter may be administered every two hours, and along with this, where we have to contend with the pains peculiar to influenza—rheumatic and neuralgic—it is well to administer conjointly small doses of bryonia. From two to five drops of the tincture can be given at intervals of two to four hours. Cases which do not respond readily to bryonia, will often quickly show amenability to the administration of rhus toxicodendron, given in one-drop doses of the green root tincture at intervals of two hours. It is remarkable what power these two simple remedies exercise over the fugitive neuralgic pains peculiar to influenza, doubtless because they modify the nutrition of the cells composing the fibrous structures, enabling them to throw off waste products and thus maintain a condition approaching that of health. The after-treatment will embrace the administration of the arseniates of iron and strychnine, and in debilitated subjects this should be supplemented by the exhibition of cod-liver oil or petroleum in the form of emulsion.

It will be noted that nothing has been said in regard to the advisability of antiseptics, and for this reason, *viz.:* That although the disease may apparently be associated with a micro-organism, this microbe plays no important part in the various manifestations of the disease. Whatever influence it may possess is, as we have seen from clinical experience, counteracted, discounted, by what the older physicians were pleased to term the *vis medicatrix naturae;* and besides, we have absolutely nothing to warrant us in assuming that our present antiseptic measures and remedies exercise any perceptible influence when taken into the system, at least so far as regards this particular malady. Further investigations in this line may develop some new ideas in this respect, but for the present, we must rest content with the stern facts as we see them at the bedside. Special attention should be directed here to the theory of "*Digestive Leucocytosis*," as elaborated by Professor Chittenden, published in another department of this number.

AUTO-INFECTION IN ABDOMINAL DISORDERS.

In view of the complications arising in the course of abdominal diseases from auto-infection, and with our recent knowledge in regard to this important but insidious factor, it behooves the physician to be on the look-out for such manifestations. Toxic anemia, as portrayed by Dr. John E. Bacon, in our last number, brings to light some valuable truths which should ever be uppermost in the minds of those having to deal with occult affections.

Considering that we now have ample evidence that a sick person may be his own worst enemy, by reason of an unhealthy condition of the alimentary canal, it is not too much to assume that in many cases of prolonged illness, the complications arising may frequently be due to auto-infection, and thus, in addition to the disease which is seen, there is another disease engrafted upon the first which is insidious but persistent. The plan of using purgatives to unload the intestinal tract and relieve the portal circulation has its value, but the habit, once established, cannot be relieved permanently by this method. The addition of antiseptics is likewise a valuable feature in the treatment of this class of cases, and the two combined will often serve a useful purpose; but cases occur in which either method alone, or both combined fail, and it is then that we are compelled to study the philosophy of cell-function.

In this connection, the studies of Pohl, as elaborated by Chittenden, promise to shed a flood of light upon the vexed and complicated problem which involves the theory of nutrition. If digestive leucocytosis, as delineated by these authors, be true, and we have no reason to doubt their conclusions, then we have a satisfactory explanation of the value of proper food for the sick, to say nothing of the nutrition of those who ordinarily enjoy good health. The fact being admitted that white blood-corpuscles or leucocytes are more rapidly developed after the ingestion of food, it follows that this cellular activity was intended to accomplish or aid in accomplishing certain metabolic changes. And when to this fact we add the knowledge advanced by Metschnikoff concerning the function of phagocytes, which are said to be modified white blood-corpuscles, together with the scientific demonstrations of Vaughan, that these cells produce through the activity of their nucleus an antiseptic substance, we have a complete scientific explanation of the need for suitable food stuffs, not only in illness of every description, but also as a precautionary measure against disease.

It is time that the stndy of the class of cases under consideration should be placed on a scientific basis, in order that we may have some definite idea of the objects to be attained—and the method of attaining them—expressed in terms which may be comprehended by the merest tyro in therapeutics, and to this end the contributions of Metschnikoff, Pohl, Chittenden and Vaughan must be accepted as valuable preliminary data. The next thing in order will be to make these scientific facts clinical facts by making them practical, and it is therefore necessary that others should take up the task in order that the work may be carried to a successful termination.

THE PRINCIPLE INVOLVED IN THE SUBCUTANEOUS USE OF BLOOD-SERUM.

An important revelation has been made to the medical profession in the form of a communication to the *Medical News* (Jan. 13, 1894), by Dr. C. F. Darnall, of Llano, Texas. According to the report, twins suffered from ptomain-poisoning, and one of them died. The surviving child was treated by the subcutaneous employment of a normal salt solution, but without apparent benefit. Later, this was followed by the use of two ounces of blood-serum drawn from the arm of the father, a healthy young man. To quote the ords of the author, "The child was carefully watched, and reaction occured in about six hours. Improvement gradually took place, and in six days, upon a diet of thin corn-meal gruel at first, later by fresh milk prepared, the child was well. It was placed at the mother's breast at regular intervals, and at the time of writing, nearly nine weeks after the onset of the illness of the children, the lacteal secretion is fully established."

Now, this is evidently a very interesting case, and all physicians who wish to understand the "whys" and "wherefores" would like to have some additional light thrown upon this occult subject. In this instance, there is no intimation that the father had been previously rendered "immune" to the peculiar ptomain which, in this case, is supposed to have been derived from a can of condensed milk. How, then, could this blood-serum have exerted a favorable change in the metabolism of the infant which was but ten weeks old? Our bacteriological friends will tell us that the benefits were due to the "*natural antiseptic properties*" of normal blood-serum; but the clinician and intelligent and conscientious physician will want to know from whence this peculiar property is derived. The blood is an alkaline fluid, and we are taught that antiseptic solutions, to be effective, must be acid. How does it happen, therefore, that blood-serum obtained from normal blood, which is alkaline, possesses antiseptic properties?

This question has already taken up so much space in the journal that, aside from our prospective subscribers, it would not be advisable to take further time for its elucidation. It will be sufficient, however, to say that it involves a principle first developed from a scientific standpoint by Professor Vaughan, who has shown conclusively that the antiseptic property of blood-serum is due to the fact that the nucleus of the white corpuscles secretes an actively antiseptic substance, a substance having all the characteristics of a proteid, which he has denominated "*nuc-*

lein." At the risk of becoming monotonous in furthering this measure, we repeat that nuclein solutions may be obtained from yeast-cells, from the yelk of the egg, from the thyroid gland, from the spleen and from other organs of the body, and when properly prepared, they are as powerful in modifying the multiplication of micro-organisms as is corrosive sublimate or any other recognized bactericide. The principle underlying the subcutaneous use of blood-serum is, therefore, demonstrable, and is strictly within the confines of scientific medicine. How long it will require to educate the medical profession in this knowledge remains to be seen; but if it was merely an empirical claim or chimerical fancy, and backed by sufficient capital or government patronage, the period would be short indeed.

EDITORIAL NOTES.

THE contents of this issue of the AMERICAN THERAPIST are as usual varied, practical, interesting, original—carefully arranged to make the reading harmonious as well as profitable. We say this for the benefit of those casual readers of this issue who are not yet—but ought to be—subscribers and regular readers.

THE American delegates to the International Sanitary Congress, to meet in Paris this month, were named by the chief officer of the Marine Hospital Service; the delegates are Dr. Stephen Smith, New York City, Dr. Shakespeare, Philadelphia, and Dr. Bailhache, Washington, D. C.

THE advance copies of the "Minutes, Reports, Papers and Discussions of the 41st annual meeting of the American Pharmaceutical Association, held at Chicago, August 14th to 20th, 1893," have just been issued to members of the association. The regular bound volumes of the "1893 Proceedings," containing the notable annual report on "Progress in Pharmacy," will be issued later.

THE NEWBERRY LIBRARY.—Prof. Senn has made a munificent gift to this institution by giving to it his collection of medical books, including especially valuable works on anatomy and surgery, full sets of periodicals, and the collection of books of the late Professor Baum of Göttingen. With this nucleus, added to by other donors, and its own already extensive collection and ample resources, the Newberry Library is apparently in the front rank, and will afford the profession in Chicago unexcelled bibliographical facilities.

THE four years' course is gradually being adopted by all the leading medical colleges. The Jefferson Medical College (Philadelphia) has just concluded to make the four years' course obligatory after this year, and the Medico-Chirurgical College (Philadelphia) is considering the advisability of making the same rule. The latter college, by the way, has just established new professorships of Otology, Genito-Urinary Diseases and Orthopedic Surgery; the new offices will be filled shortly.

THE PENNSYLVANIA STATE MEDICAL SOCIETY will hold its next meeting at Gettysburg, May 15, 16, 17, and 18, 1894. Those desirous of presenting papers are requested to notify, at an early date, the Chairman, or any other member of the Committee of Arrangements. Dr. E. E. Montgomery, of Philadelphia, is the chairman, and the other members of the committee are: Dr. Isaac C. Gable, of York; Dr. Geo. S. Hull, of Chambersburg; Dr. John C. Davis, of Carlisle; Dr. Henry Stewart, of Gettysburg; Dr. George Rice, of McSherrystown; Dr. E. W. Cashman, of York Springs.

THE American Medical Association meeting is to be held this year at San Francisco, on Tuesday June 5th. To Californians this date is a little late for showing off their City and State to best advantage; it will be a trifle too hot for comfort by that time. A better date would have been May 5th, and by arranging early excursions the visitors could have taken in Lower California in April, then the Mid-Winter Fair—which will undoubtedly extend to May—and wound up their hours with attendance at the Convention. Perhaps a general request to re-consider the date should result favorably with the Committee who make the date and all arrangements.

AFTER a spirited and quite acrimonious campaign, the New York County Medical Society held its annual election Monday evening, January 15th, 1894. All the candidates on the regular ticket, excepting Dr. McLeod for president, were elected on the first ballot. For the presidency three candidates were in the field, and none of them obtained a clear majority on the first ballot; a second ballot resulted in the re-election of Dr. McLeod. The candidacy of Dr. Alexander, urged by the younger and progressive members, was the disturbing cause in this election; the feelings of the contesting factions were wrought to a high pitch, and the proceedings were so turbulent that the daily press of New York took up the matter and regaled the public with entertaining accounts of the contest. All is now harmony again, we hope.

Correspondence.

THE DOSE OF SANTONIN.

To the Editor:

Sir:—On page 678 of the Cincinnati *Lancet-Clinic*, of Dec. 9, 1893, appears a letter from J. M. Murkon, M.D., of New York, to the editor, calling attention to the dose of santonin, used as an emmenagogue, which I had reported in the American Therapist, vol. I., no. 1, p. 8 (July, 1892). Dr. Murkon asks "whether the dose as given is not a misprint; if not, it is certainly more than dangerous, as five grains has caused a fatal result."

I wish to say that in the year and a half since the article in question was written, I have often made use of *ten-grain* doses of santonin for its emmenagogue effects, and in no instance have I learned of the slightest discomfort from such a dose. I rarely administer more than a single dose; but if more are required, I invariably wait twenty-four hours before giving them. The dose is always administered at night on retiring, and at the same time I order a mustard foot-bath, and frequently hot drinks *ad libitum*. I would say again that I have never seen this procedure lead to any untoward effects, or even any discomfort, and usually the menstruation is comfortably and apparently normally established by the next day.

I do not believe it is possible to produce miscarriage or abortion by this treatment. I have never seen it follow, and so certain am I of this fact that I have come to look upon it as being a safe and convenient means in making a differential diagnosis as to the presence or absence of conception in cases of suppressed menses. I am so confident of this diagnostic value that I am in the habit of saying to the patient when there is any doubt as to the cause of the suppression, "I shall give you a dose of medicine which will bring matters around all right if you have taken a cold, but if there is a natural cause for the arrest of the menstruation you need look for no results." Who has not occasion, frequently, to decide for the anxious patient the *cause* of delayed menstruation? They come to you insisting that the suppression is not due to conception, and are exceedingly importunate in their demands for relief. Here, then, is a medium through which I have frequently solved this perplexing question; and through which I have been enabled to conscientiously *prescribe* for such cases, while otherwise I should have refused to use any means to afford relief, simply advising patience, and awaiting the tedious restoration of function by Nature's own forces.

D. H. Bergey, M.D.

1245 S. 28th St., Philadelphia, Pa.

ICE IN BRONCHIAL ASTHMA.

To the Editor:

Sir:—In the November number of the American Therapist, I contributed a short account of a long, violent and very refractory exacerbation of bronchial asthma, which yielded almost instantly to the application of ice-packs over the pneumogastrics. The vagi are held to contain both dilator and contractor filaments for the bronchial muscles. This attack seemed to me to be a convulsion, so to speak, of the afferent contractor filaments. By freezing the vagi, then, these violent motor impulses should be inhibited; and such turned out to be the case.

A day or two since I received a letter from Dr. Ezra Peters, of Missouri, saying: "I have just returned from a case of asthma very similar in every particular to the one reported by you in the November number of the American Therapist, except that I did not use nitro glycerin. After a hard tussle for fifty-two hours for air, a fifteen minute's application of the ice-pack to the neck caused the respiration to become quite full and free, and the pulse to fall from 138 to 80."

I publish this additional experience in the hope that others will give this simple procedure a further trial.

Ernest B. Sangree, M. D.

2020 Arch St., Philadelphia.

Current Literature.

NATURE'S CURE OF PHTHISIS.

Dr. Henry P. Loomis states (*Med. Rec.*) that he has found quite a number of cases of recovery from phthisis. His summary is as fol- lows:

1. Out of 763 persons dying of a non-tubercular disease seventy-one, or over nine per cent., at some time in their life had phthisis, from which they had recovered.

2. The new fibrous tissue by which the advance of the disease was apparently checked and the cure effected, developed principally by round-cell infiltration of the inter-lobular connective tissue, which in some instances had increased to an enormous extent. Some of the new fibrous tissue was formed later by round-cell infiltration in the alveolar walls and around the blood-vessels and bronchi. Pleuritic fibrosis appears to be secondary to tubercular processes in the lung substance. The interlobular connective tissue is the primary and principal source of the fibrosis.

3. Tubercle bacilli were present in the healed areas in three out of twelve of the lungs examined. These healed areas did not differ in their gross or microscopical appearances from those in which they were not found.

4. Thirty-six per cent. of all cases where the lungs were free from disease showed localized or general adhesions of the two surfaces of the pleura.

VENTRO-FIXATION OF THE UTERUS.

Dr. Spaeth, of Hamburg, according to the *Lancet*, has now published reports of twenty-five cases in which he has performed the operation known as 'ventro-fixation of the uterus.' None of the cases proved fatal. In seventeen permanent anteflexion was obtained; in fourteen there was, besides the retroflexion, a diseased condition of the uterine appendages necessitating their removal. Of the cases that were not so complicated all except one were successful. Dr. Spaeth rarely fastens the stump of the broad ligament into the abdominal wound, usually stitching the fundus uteri directly to the parietal peritoneum. In the later cases he adopted Schede's method—that is to say, silver sutures were drawn through the whole thickness of the abdominal walls at intervals of about an inch and a half, but they were not at first tied. In the intervals finer silver sutures were inserted through the sheaths of the recti, the peritoneum and the fundus uteri, and tightened, twisted, and cut short, the whole of course being beneath the skin; the thicker sutures were then tightened and twisted and the lips of the wound brought together with superficial catgut sutures. The subcutaneous silver sutures remained, but never gave any trouble. Dr. Schede and Dr. Spaeth are both of opinion that this method is the best for preventing any hernia, and that when it has been employed abdominal binders are unnecessary. Dr. Spaeth does not perform or recommend ventro-fixation in cases of retroflexion unless there is either disease of the appendages or chronic peritonitis.

PNEUMONIA.

Croupous pneumonia has during recent times been defined as "an infectious disease characterized by inflammation of the lungs and constitutional disturbance of varying intensity."

The recognition of an infection as a cause of this disease necessarily implies the existence of a specific germ, and as corollary we may state that this germ, like all germs, has a limited existence.

During the cause of the inflammation three stages have been recognized—congestion, red hepatization, and gray hepatization. Now, on a physician being called to a case of this kind, the query is, what is the best thing to do in the way of medical treatment?

If one consults some of his associates he will find remedies recommended *ad nauseam*. One declares the fever does no harm, while another is not satisfied unless one of the chemical antipyretics keeps the temperature near the normal staadard.

Varying results, of course, follow these different treatments.

Having for a long time accepted and practised the doctrine that many diseases can be modified and conducted to a safe issue by giving a remedy that will attack the diseased cell-function, I have treated my cases of pneumonia in this way. The three remedies that I employ are aconite, bryonia and iodine. If I am called to see a patient during the first stage I give aconite and iodide of potassium, and on the development of the second stage I continue the iodide and also give bryonia. The aconite is given with a view of relieving the vaso-motor tension, and thereby equalizing the circulation; this, if doing nothing more, produces a measure of comfort. The last two remedies are given for their local effect. Now, as to a dose: in a half goblet of water I put ten drops of tincture of aconite, and in another goblet containing same quantity of water I put five grains of iodide of potassium, and give a teaspoonful alternately every hour. As soon as the second stage comes on I substitute five drops of tincture of bryonia for the aconite and continue to give in alternation with the iodide. If the heart becomes weak give one-fourth of a grain of extract of nux vomica every three or four hours. If the patient has much pain, hot applications are used. This with suitable food constitutes a treatment that bears excellent results. The physician who believes in giving large doses of quinine, ammonia, etc., will sneer at these small doses and hotly declare that nature cures independently of the drugs. In view of this declaration there is a compliment paid to *vis medicatrix naturæ* that the writer recognizes, and to have such an ally is certainly a desirable help. Those who have faith in heroic dosage are not always mindful of this fact, nor yet of the condition which obtains under their hands, and that is a state of drug disturbance plus the disease. Nature here is hindered, not assisted.

S. B. Childs, M D.,

The Brooklyn Medical Journal, Jan., 1894.

DRUG ACTION.

Chemistry makes such rapid strides of late that it is impossible for the medical man in ordinary practice to keep pace with it. We have ptomaines and leucomaines, and in the literature of the journals these two termes are used indiscriminately, which is unfortunate, as tending to create confusion. While ptomaines are those alkaloidal products of metabolism belonging to the cadaver, or to any dead organism, whether animal or vegetable, the term is now applied to the same products in living tissues and which really are not ptomaines, but leucomaines. Chemically speaking, both ptomaines and leucomaines exist in the forms of monamines, diamines, and triamines, and have hitherto been regarded as resulting from the oxidation of ammonium salts by abstraction of water or from acids by substitution of amidogen. Yet the bacteriologists assure us that they are the secretions, or rather excretions, of bacteria, just in the same way that the strata of non-igneous rocks of the earth are formed primarily by the secretion, and secondarily by the excretion, of calcareous shells of diatoms, or of the cretaceous shells of those protozoans entitled rhizapods. Elsewhere in the Summary I have expressed myself to this effect in nearly the same language, and while it may seem pedantic, it should be borne in mind that this is the age of terminology.

We, each of us, have our special ties—shall I say hobbies? One of us making the eye a specialty will make use of ophthalmological terms. Another turns his attention to the technology of animal tissues, and still another, with an eye towards the bacteriological existences, leads us into a labyrinth of Greek and Latin technics.

We are talking of ptomaines and leucomaines, and that their existence is probably due to bacteria. These are regarded as toxines, and certain diseases are said to be caused by these toxines, and not from the bacteria themselves directly, but indirectly. I appreciate the idea that the curative results of these diseases are due to the antagonism of the remedies to these toxines, and not to the destruction of the bacteria. Before we inquire into the curative action of remedies we must first find out how these toxines produce disease. The tendency is to trace the origin of all disease to a change in the protoplasmic cells. This change is evidently due to a toxine. A healthy physiological change in the cells may be termed metabolism, while an unhealthy or pathological change may be termed katabolism. The question arises, in what way does katabolism arise from these toxines? It occurs to me that it must be due to chemical affinity, or as it is sometimes very properly called, *chemism.*

In a brief but very excellent article on therapeutic action by Dr. Thomas J. Mays, of Philadelphia, in the AMERICAN THERAPIST, he commences thus: "Every phenomenon in nature becomes intelligible only when considered in the light of force. Any scientific system of therapeutics must therefore be built on a broader basis than that of the mere drug action on the animal economy." In this he is unquestionably correct; but when he, along with others, asserts that drug action is due to what is termed "interference," to me, at least, he becomes unintelligible. I am utterly unable to take in the idea. When he refers it to molecular motion, which, after all, is chemical change, he is right. Heat, light, electricity, motion—each interchangable, correlating with each other, constituting force—must be the source of all chemical action. These are, strictly speaking, proteodynamics. They act, as I have indicated, upon the cell. This action may be either metabolic or katabolic, and when the remedial agent is presented the change results. So true is this that the *vis vitæ* itself results from chemism, so that every action, every change, has simply two factors—matter and dynamism.

In this connection permit me to make the following quotation from the *Medical News:* "Of course, it had been recognized that certain diseases are self-limited. and the phenomena of natural and acquired immunity were duly appreciated; but it required the knowledge gained by the advances in bacteriology to afford a rational explanation of these phenomena. There is yet much to learn. The beginning has but been made. Enough, however, has been seen to teach that disease has its chemistry, and that the treatment of the future will depend upon a knowledge of this fact and the application of chemic laws."

The progressive physician does not believe that medicines *cure.* It is true he uses the word just as we say the sun rises and sets when we know that it does neither the one or the other, but that the phenomena are due to the revolution of the earth on its axis. The cell function is the building function, you may call it metabolism or anabolism. It is either a building or a repairing process. Now derange the process by means of toxines, and you have what may be called katabolism. The molecules are disorganized, the tissues become disorganized, and the result is impaired function. A remedy reaches the part; among the molecules of the remedy and the molecules of the protoplasmic cells chemism takes place; the toxine is antagonized, antidoted, neutralized, changed, and the metabolic process is established. This is the natural physiological process, and a healthy action results; and herein I have thought may be the secret of the action of minute doses. I will illustrate. In the chemical laboratory you have a combination of mercuric sulphate with about four-fifths its weight of chloride of sodium; and heating in a test-tube the result is mercuric chloride ($HgCl_2$), or corrosive sublimate. Repeat the experiment by using mercurous sulphate, with about a third of its weight of chloride of sodium, applying heat, and you have mercurous chloride ($HgCl$), calomel. Here by diminishing the amount of chlorine in one of the experiments you have quite a different result, due to quantivalence. Why, then, if the process of katabolism be chemical, may not a result be altogether different among the atoms of the molecules of the cells and of the medicine, in accordance with the law of definite proportions? If quantivalence exists among chemical radicals, why may it not exist among organic radicals? J. F. Griffin, M.D.,

The Medical Summary, Jan., 1894.

DIGESTIVE LEUCOCYTOSIS.

Many investigators, seeking after an explanation of the methods by which nutritive material is carried from the alimentary tract to the different tissues and organs of the body, have called attention to the possible importance of the white corpuscles in the assimilation of food-stuffs, citing the fact that in a well nourished carnivorous animal there is a marked production of new cells in the lymph spaces of the intestinal mucous membrane after the ingestion of food, the extent of said production being apparently dependent upon the amount of assimilable elements contained in the food. It has been further supposed that this increased production of lymph cells is followed by a corresponding increase in the passage of leucocytes into the blood, mainly on the ground that only a comparatively few of the cells could have any local action in aiding the nutrition of the intestinal walls. There has been, however, a lack of positive proof of these assumptions until Pohl,* in his studies on the absorption and assimilation of food-stuffs, took up the matter experimentally, and sought to obtain some positive data bearing on the question. This investigator made a careful study of the physiological variations in the content of leucocytes in dog's blood, using young animals and feeding them only one meal a day. The leucocytes were counted after Thoma's method, preliminary experiments showing that there was very little difference in the number of white cells contained in a given volume of arterial or venous blood. Thus, in the case of a fasting animal, blood taken from the jugular vein contained 16,378 white corpuscles per cubic millimeter, while blood from the carotid artery of the same side contained 15,449 white cells per cubic millimeter. Further, from a well-fed animal, whose blood was examined during digestion, similar results were obtained, *i. e.*, 27,036 from the jugular vein, and 26,866 from the carotid, thus showing that blood from the capillaries of either veins or arteries would give essentially the same results.

A single experiment, illustrative of the many reported by Pohl, may be given here, as showing the marked effect of food upon the number of white corpuscles in the circulating blood:

Time.	Number white corpuscles per cubic millimeter blood.
9 A. M.	8,689
9 "	100 grams meat fed.
10 "	16,685
11 "	17,296
5 P. M.	7,256

Maximal increase, 99 per cent.

About thirty distinct experiments were tried on ten different animals, with only two or three negative results to fifty positive ones. The results, taken collectively, plainly indicate that the increase in the number of leucocytes in the circulating blood, after the ingestion of food, is very marked, the maximal increase being 146 per cent., while the average increase amounted to 78 per cent. This, as Pohl states, would indicate for the total content of blood in an animal an increase in some cases of 1,000,000,000 of leucocytes. Control experiments showed that, normally, there were only comparatively small variations in the content of leucocytes in the blood, from hour to hour, in the absence of food. It is to be further observed that this marked increase in the number of white corpuscles in the circulating blood, after the ingestion of food, usually reaches its maximum in the third hour, viz.: at a time when digestion would most probably have reached its height, no noticeable change being usually observed before the end of the first hour after the taking of food. Evidently, some transformation-products of the ingested food must be formed before leucocytosis becomes marked. The return to the normal number of leucocytes shows no regularity; in some cases being very gradual, in others quite rapid.

---

* Archiv für Experimentelle Pathol. und Pharm. Band 25, p. 31.

This marked action of food in increasing the number of leucocytes in the circulating blood, naturally raises the question whether all varieties of food possess this power, or whether it is limited to some one or more individual food-stuffs. In attempting to answer this question, Pohl tried a large number of experiments, the results of which afforded proof that neither water, salts, fats, carbohydrates, or even meat extracts, are able to materially affect the number of leucocytes in the blood. Proteid-containing foods, on the other hand, such as meat, Witte's peptone, and gelatin peptone quickly raise the content of white blood corpuscles to a marked degree. Somewhat noticeable was the result obtained on feeding wheat bread. This food-stuff, in spite of its fairly large content of proteid matter, failed to exert any influence on the number of leucocytes in the blood, and in conformity with this result it was found that in herbivorous animals there was an utter lack of anything approaching a digestive leucocytosis, even after protracted fasting.

In attempting to explain the cause of this increase in the number of leucocytes in the circulating blood, after the ingestion of proteid food, we are at once confronted with the possibility of this apparent increase being relative rather than absolute; as possibly due to a loss of water from the blood, incidental to the marked outpouring of digestive juices accompanying digestive proteolosis. For this view, however, there is very little support. In the first place, the blood would need to become very much thickened by loss of water to account for the increased number of leucocytes observed in the experiments. Furthermore, we know that the outpouring of watery secretions into the intestine during digestion is accompanied by an absorptive current in the opposite direction, which would tend to counteract any tendency towards concentration of the blood, and, indeed, might lead in many cases to a direct dilution of this fluid. Again, if the increase in the number of white corpuscles is to be explained in this manner, there should be a corresponding increase in the number of red blood corpuscles. As a matter of fact, Pohl's results show that those conditions of diet tending to increase the number of white blood corpuscles are without any noticeable effect on the red corpuscles. Abstraction of water can not, therefore, be the cause of the large number of leucocytes contained in the blood after a proteid diet. Much more plausible is the view that the increase is due to a more rapid transference of the corpuscles from their point of origin, viz.: from the intestine and from the lymph glands of the mesentery, to the blood. In other words, it seems probable that digestive proteolysis in the stomach and intestine is followed or accompanied by a rapid production of new cells in the lymph spaces surrounding the intestine. If this view is correct, there should be a much larger number of leucocytes in the blood and lymph flowing from the intestine, in an animal in full digestion, than in the arterial blood coming to the intestinal tract. That such is the case is shown by the following experiment taken from the many reported by Pohl:

DOG WEIGHING 3,330 GRAMS, IN GOOD DIGESTION.

A. M.

8.50. Blood from skin contained 8,330 white corpuscles in cubic mm.

9.10. Blood from skin contained 9,618 white corpuscles in cubic mm.

120 grams meat and 20 c. c. water fed.

10.40. Blood from the skin contained 15,092 white corpuscles in cubic mm.

10.55. Boey opened, several loops made with the small intestine, and blood withdrawn from vein and artery without any great loss of blood.

White Corpuscles in Cubic mm. Blood.

1. Intestinal loop. 11.35 A. M., venous blood contained 17,077.
   11.39 A. M., arterial blood contained 7,649.
2. Intestinal loop. 11.40 A. M., venous blood contained 15,033.
   11.40 A. M., arterial blood contained 7,061.

The facts would thus seem to warrant the assertion that, as a rule, the venous blood flowing from the intestinal tract of an animal, fed on a rich proteid diet, contains a much larger number of leucocytes than the arterial blood flowing to the intestine; although, if space permitted, we might instance certain occasional exceptions due to various causes, which, however, do not reflect against the view that there is a marked production of leucocytes in the lymph spaces surrounding the intestine, and in the lymph glands of the mesentery, as a normal accompaniment to digestive proteolysis.

Taking into account all of the circumstances attending the circulation of the blood through the abdominal organs, especially the rate of flow, and remembering the great increase in the number of leucocytes contained in the blood during the several hours attending digestive proteolysis, it is plain that a comparatively large amount of proteid matter must be transferred from the intestine to the blood in the bodies of the white corpuscles so abundantly produced in the lymph glands, etc., during proteid digestion. Indeed, Pohl calculates, on the basis of his own and the observations of others, that in the case of an animal weighing 5 kilograms, und fed with 100 grams of fresh beef, containing 20 grams of proteid matter, the entire amount of albumin required to supply the loss incidental to the normal physiological processes of the body could be absorbed into the circulation from the intestine in the form of leucocytes, assuming a digestive period of six hours. Moreover, the evidence acquired from Pohl's experiments of the enormous production of new cells in the intestinal walls during the height of digestion renders such a theory of the transference of proteid matter from the alimentary tract to the tissues and fluids of the body quite plausible. At the end of twenty-four hours the leucocytes have fallen back to their normal number, having presumably been broken down in the blood-plasma or dissolved in the tissues and organs, thus giving up the proteid matter, of which they are composed, for the general nourishment of the body. Obviously, we can not admit that all the proteid matter of the food is absorbed in the form of leucocytes, for, as we know, some at least of the proteid food ingested is carried beyond the peptone stage, either through the action of trypsin, or through the action of the organized germs in the intestine, but we can certainly accept the views so admirably worked out by Pohl, in so far as they indicate one way in which proteid matter may pass from the intestine into the blood, after having undergone a preliminary transformation in the alimentary tract into primary albumoses and peptone. Again, if Pohl's views are correct, we see that the proteid foods are quickly transformed into organized material in the body of the lymph cell prior to their absorption into the blood, a view which is in harmony with the long-known fact that peptone and other products of digestion can not be detected, in any quantity, at least, in the blood of the portal vein, even after the ingestion of a diet rich in proteids. As has been frequently stated in the past, the products of proteolytic action are transformed in the very act of absorption, presumably through the activity of the epithelial cells of the villi, and we may now assume, in the light of Pohl's results, that this transformation may be due in part, at least, to the upbuilding of the ordinary products of digestion into the living protoplasm of the white corpuscles in the intestinal walls, and in this form as organized albumin circulated through the body.

Editorial in Dietetic and Hygienic Gazette, November, 1893.

Book Notices.

An American Text-Book of Gynecology, Medical and Surgical, for the Use of Students and Practitioners. Edited by J. M. Baldy, M. D., assisted by a corps of Nine Contributors. Cloth, 8 vo., pp. 713. 360 illustrations and 37 colored and half tone plates. Philadelphia: W. B. Saunders, 1894. (Sold by Subscriptions only; Price, $6.00).

The magnificent work described above has just been received from the publisher, and inasmuch as it is at once the most modern and most complete of all works of this class prepared exclusively by American authors, it will naturally receive a warm welcome. A somewhat cursory examination shows that it is what it claims to be, namely, a practical work, written by practical men, who are, themselves well qualified by experience, and thoroughly equipped for teaching, all being teachers in high repute in different medical schools. Owing to this special feature, it is entitled to more than usual attention at the hands of American physicians; but this characteristic will give it standing abroad, and doubtless will be the means of advancing the cause of scientific treatment in the class of cases with which it has to deal. Theory and speculation have been set aside, and in their place we find reliable data not alone for the operator, but also for the general practitioner, and we bespeak for the work a favorable reception. The following extract from the prospectus will give in brief the main objects kept in view in its preparation:

In this volume all anatomical descriptions excepting what is essential to a clear understanding of the text have been omitted, illustrations being largely depended upon to elucidate this point. It will be found thoroughly practical in its teachings, and is intended, as its title implies, to be a working text-book for physicians and students. A clear line of treatment has been laid down in every case, and, although no attempt has been made to discuss mooted points, still the most important of these have been noted and explained; and the operations recommended are fully illustrated, so that the reader may have a picture of the procedure described in the text under his eye, and cannot fail to grasp the idea.

It is to be regretted that the authors' names do not appear in connection with their respective contributions, and this is about the only feature that will detract from the completeness of the work. For example, we should like to know which one of the ten is responsible for the statement found on page 90, to the effect that *"All salts of potassium in full doses are cardiac depressants."* This is true only in part, as it is a well-recognized fact that when eliminatives are required, iodides are valuable, in fact, are demanded, and when given in what is known as medicinal doses, potassium iodide is an efficient cardiac stimulant. It is not, however, a cardiac stimulant in the sense that digitalis, strychnine and arsenic are cardiac stimulants, through their influence upon the cardiac mechanism; but rather, because potassium iodide increases protoplasmic activity, promoting the discharge of waste products, and thus lessens materially the work devolving upon the heart muscle itself. Statements of this character should always be made with caution, since they are too sweeping, and calculated to mislead those unfamiliar with the true physiological action of drugs. The book is well printed, handsomely illustrated, and reflects credit alike upon the authors and publisher.

Syllabus of Lectures on the Practice of Surgery. Arranged in conformity with the American Text-book of Surgery. By N. Senn, M. D., Ph. D., L. L. D. Cloth, 12mo., pp. 221. Philadelphia. W. B. Saunders. 1894. (Price, $2.00.)

Like all Prof. Senn's work, this is an excellent compilation, and no doubt will be highly appreciated by teachers in this department, although it will prove most acceptable to the general practitioner who desires to refresh his memory from time to time in regard to surgical affections. By reference to the list of contents, arranged alphabetically, any subject can readily be located, and all the more important points gained in the course of a few minutes. Those who do not possess the original work will be prompted to purchase it when they have an opportunity of examining this convenient arrangement.

FUNNY BONE.—A Book of Mirth, for Doctors, Druggists, Dentists, Medical Students and Others. Containing Funny Sayings, Jokes, Good Stories, Dialogues, Conundrums, Ludicrous Things, Ditties, etc., from a great many sources, with *Over 150 New and Original Comic Illustrations* by Dr. L. CRUSIUS, all of which pertain to the Medical and Pharmaceutical Professions. The FUNNY BONE PUBLISHING CO., 1421 Market St., St. Louis, Mo. (Price, 50 cents).

Read the preceeding title and description carefully: It tells all about the nature of the book. Then take our word for it that the book is really very funny; the illustrations are unique, odd, totally unlike anything ever supplied by a comic artist, wholly original; and if you want something odd and unique, to read and to show to professional and lay friends as a curiosity, send 50 cents to the publishers and get a copy by return mail. You'll get more than 50 cents' worth of fun out of the book.

THE Antikamnia Visiting List is a neat and practical account book, of convenient size, and fitted into a durable leather cover. We have received one of these lists from the Antikamnia Chemical Co., St. Louis, Mo., and have no doubt that any physician who will write to the firm can obtain the same—and make good use of it.

BOOK NOTES.

The Funk & Wagnalls Co. (18 and 20 Astor Place, New York) announce that Vol. I of their new "Standard Dictionary" was issued in December, but the first edition was not large enough to fill all orders booked before publication. A new edition is in press, and will be ready shortly. The second volume of the work will be ready in a month or two, and simultaneously the single volume edition of the entire work will be ready. Write for a prospectus: this Standard Dictionary is a wonderful book, and if you make yourself familiar with its features—as comprehensively shown in the prospectus—you are bound to secure a copy for your library. Write to the publishers at once.

E. B. Treat (5 Cooper Union, New York) has just issued two new volumes: Landis "How to Use the Forceps", revised and enlarged by Chas. H. Bushong, M. D. (price, $1.75); and Beard's standard work on "Nervous Exhaustion" (price, $2.75). Both books are issued in the familiar style of the publisher, and form necessary additions to available reference books on important specialties.

E. B. Treat also announces the early publication of his "International Medical Annual" for 1894 (the 14th year of publication). From the prospectus we note that the staff of editors and collaborators remains at the same high standard as heretofore, and hence the usual excellent annual review of medical progress in all branches is ensured. Write for prospectus; the book is sold at $2.75, and is cheap and indispensable.

Lea Bros. & Co. (Philada) announce the publication of the new *National Dispensatory* on January 25th. The J. B. Lippincott Co. had advertised the appearance of their new *U. S. Dispensatory* for January 15th, but some delay has apparently been caused, and the book will not appear until the middle of February. There will be greater rivalry than ever before between these two books; but each has its special features, and both are valuable—so that the careful student will do well to procure both volumes. The information in one will often amplify the other, and neither volume alone contains all the knowledge we possess—and ought to have at command—regarding drugs and materia medica.

PUBLICATIONS RECEIVED.

The Present Condition of Otology in Europe. By LAWRENCE TURNBULL, M. D., of Philadelphia. Reprint, 1893.

The Relief of Chronic Deafness, Tinnitus Aurium and Tympanic Vertigo, by Removal of the Incus and Stapes. By CHARLES H. BURNETT, M. D., of Philadelphia. Reprint, 1893.

Some Observations on Treating Cases of Diphtheria. By G. BENSON DUNMIRE, A. M., M. D., of Philadelphia. Reprint, 1893.

A Case of Tumor of the Optic Thalamus. By WHARTON SINKLER, M. D., of Philadelphia. Reprint, 1893.

Pathology and Treatment of Paralysis from Pott's Disease. By WHARTON SINKLER, M. D., of Philadelphia. Reprint, 1893.

Syringo-Myelia. By WHARTON SINKLER, M. D., of Philadelphia. Reprint, 1893.

Hysterectomy: Indications and Technique. By J. M. BALDY, M. D., of Philadelphia. Reprint, 1893.

Removal of the Uterus and Its Appendages for Pelvic Inflammatory Disease. By J. M. BALDY, M. D., of Philadelphia. Reprint, 1893.

A Few Thoughts About Ophthalmometry, as to What the Javal Instrument Will Do, and What It Will Not Do. By LOUIS J. LAUTENBACH, A. M., M. D., of Philadelphia. Reprint, 1893.

Epiphora or Watery Eye. By L. WEBSTER FOX, M. D., of Philadelphia. Reprint, 1893.

Phlyctenular Conjunctivitis, with Special Reference to the Pathology and Prophylaxis of the Disease. By LOUIS J. LAUTENBACH, A. M., M. D., of Philadelphia. Reprint, 1893.

Phthisis: A New Method of Treatment. By HENRY S. MORRIS, M. D., of New York. Reprint. 1893.

Extract of Malt and Its Combinations. By J. J. MULHERON, M. D., of Detroit, Mich. Reprint, 1893.

THE Measured Effects of Certain Therapeutic Agents, etc By D. D. Stewart, M. D., of Philada. Reprint, 1893.

The Successful Treatment of Anæmia, with Effect Shown by Increase of Red Corpuscles and Haemoglobin. By H. P. Loomis, M. D., of New York. Reprint, 1893.

Miscellany.

Metric Equivalents.—The metric nomenclature is coming into such common use, especially in scientific articles, that the following formulas will be found valuable:

Weight Equivalents.

To convert grains into grammes multiply by	0.065
To convert grammes into grains multiply by	15.5
To convert drachms into grammes multiply by	3.9
To convert ounces (avoir.) into grammes multiply by	28.4
To convert pounds (avoir.) into grammes multiply by	453.6

Measure Equivalents.

To convert cubic centimeters into grains multiply by	15.5
To convert cubic centimeters into drachms multiply by	0.26
To convert cubic centimeters into ounces (avoir.) multiply by	0.036
To convert pints into cubic centimeters multiply by	473
To convert liters into ounces (avoir.) multiply by	35.3
To convert gallons into liters multiply by	3.8

Fluids with Meals.—The arguments presented by many writers seem to prove that the moderate taking of fluids with the food at meals is not without benefit. But the importance of the thorough mastication of food before it is presented to the stomach must never be overlooked. If this is interfered with in any way by the use of liquids we must promptly prohibit their indulgence.

Fluids may be taken ad libitum during meals by those whose digestive powers will allow it; but such persons should keep in mind that the strongest stomach may be abused too far, while those whose stomachs are already unequal to a severe strain should be especially careful as to the quantity of fluid imbibed with the food.

The saliva is the best lubricator for the food while it is in the mouth, both because of its starch-digesting powers, and because its alkalinity serves to stimulate a copious flow of the acid secretion of the stomach.

Any habit, therefore, which permits the entrance of food into the stomach before it is thoroughly incorporated with saliva must be pronounced pernicious in the extreme.

If we cannot afford the time necessary for masticating our food properly and incorporating it thoroughly with saliva, it would be better to take nothing but broths and similar foods. The use of water and other liquids as lubricators is not to be tolerated.

On the other hand, if we bear in mind the whole mechanism of digestion, it will readily be seen that, in cases of weakness or want of tone on the part of the muscles of the stomach, when every part of the food cannot be properly presented to the action of the digestive juices, the introduction into the stomach of a moderate amount of water may be of no slight benefit. The mass of food will become more pliable, and so more easily operated upon by the weakened muscles.—*Youth's Companion.*

Malakin is a salicylated derivative of phenacetin, which occurs in small, palish-yellow crystals, insoluble in water but quite soluble in warm alcohol. The mineral acids decompose it into salicylic aldehyde and phenacetin. This also occurs in the stomach, and salicylic acid is found in the urine. Jaquet of Basle has (*Jour. de Med. de Paris*) found it of value in rheumatics in whom salicylic acid produces untoward effects. According to him, it has a mild, efficient action similar to that of nascent salicylic acid. No untoward effects were observed, but the results were prompt. It is given in 15-grain doses four or six times daily. As an anti-neuralgic and antipyretic it is inferior to phenacetin.—*Med. Standard.*

Protection against Diphtheria.—The Board of Health has announced a new measure looking to the control and diminution of diphtheria, and circulars were sent to practising physicians giving the grounds for the step decided upon, and the reasons why it was deemed expedient.

The proposition is to supplement the primary bacteriological examination now made at the beginning of any individual case of the disease, by other cultures repeated during its course and during convalescence. It is hoped in this way to make sure that apparent recovery, and the disappearance of all false membrane is followed by the extermination of all the Loeffler bacilli from the throat. The circular is written by Dr. Hermann M. Biggs, chief inspector of pathology, bacteriology, and disinfection, and is signed by President Wilson with the approval of the board. It is explained that 405 cases of true diphtheria have been subjected to repeated examinations at intervals of three or four days during illness and until the disappearance of the bacilli. It was found that in 160 cases the bacilli persisted after the complete separation of the false membrane, or, in other words, after the individual had recovered. Of these 160 cases, 103 showed the germ for seven days, thirty-four for twelve days, sixteen for fifteen days, four for three weeks, and in three for five weeks, after the exudation had completely disappeared from the upper air-passages. The circular infers, thence, that "these results show that in a considerable proportion of cases persons who have had diphtheria continue to carry the germs of the disease in their throats for many days after all signs and symptoms of the disease have disappeared."

These experiments have led the Health Department to adopt the rule that no person who has suffered from diphtheria shall be considered free from contagion until it has been shown by bacteriological examination, made after the disappearance of the membrane from the throat, that the throat secretions no longer contain the diphtheria bacilli, and that until such examinations have shown such absence all cases in boarding-houses, hotels, and tenement-houses must remain isolated and under observation. Disinfection of the premises, therefore, will not be performed by the department until examination has shown the absence of the organisms.

Secondary cultures, as in the case of primary cultures, may be made by the attending physician, if he so desires; otherwise they will be made by the inspector of the district in which the case occurs. This applies only to cases occurring in boarding-houses, hotels, and tenement-houses—not to those in private houses.—*N. Y. Evening Post*, January 8, 1894.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, FEBRUARY 15th, 1894. No. 8.

Original Articles.

INOCULATION IN DIHPTHERIA AND MEMBRANOUS CROUP.

By W. W. Myers, A. M., M. D.

Diphtheria is pre-eminently a specific disease, and contagious. Its manifestations appear on the mucous membranes and skin, because it has that character in common with specific and contagious diseases; but with this difference, that it does not attack the external integument, except when denuded of epidermis. It shows a marked preference for the pharynx, air-passages and larynx, constituting the affection commonly known as membranous sore-throat, malignant sore-throat, and suffocative sore-throat. It also invades the mucous membrane of the nose and mouth, vagina, prepuce and glans penis. Of all its forms the pharyngeal is by far the most common. In some epidemics it almost exclusively assumes the pharyngeal form, carrying off its victims by croup, the disease extending to the larynx and trachea.

In the malignant form there is a gangrenous fetor of the breath, the veil of the palate is thrust forward, and on this veil is a whitish membranous exudation. This membrane, which often reaches to the pillars of the fauces, becomes merged in a sort of grayish putrilaginous magma occupying the throat and exuding a grayish sanious fluid of the most disgusting odor. When the disease extends to the nasal fossæ there is a profuse discharge from the pituitary membrane, a pseudo-membranous secretion with which a little blood is mixed.

A special form of diphtheria may be contracted by contact with an individual suffering from the ordinary form of diphtheria, just as confluent small-pox may be taken by contact with one who has the distinct form of the disease. In the rapidly fatal malignant form, there seems to be a simultaneous poisoning of the whole system; when the characteristic pellicle begins to appear on the tonsils and on the nasal fossæ, the whole economy is profoundly altered.

It is then pre eminently a specific disease, the different local and general forms, constituting merely varieties of a species, attributable to the action of the same morbific principle—a specific morbid poison. It is a pestilential disease, and like all diseases of an unquestionable specific character, it is contagious and it is *inoculable.*

Inoculations can be made by means of punctures on the arm, tonsils, and veil of the palate.

Once diphtheria enters a house—unless checked by *inoculation*—it has an undoubted tendency to propagate itself by contact from individual to individual. How frequently we see almost all the children in a family attacked in succession, while the father, mother, and attendants on the sick are also brought more or less under the influence of the disease. In its malignant form it kills after the manner of septic diseases, by a sort of general and complete poisoning of the system. This poisoning shows itself during life by local and general symptoms, by a peculiar alteration in the blood, and by albuminuria.

Tox-albumen used for inoculation is prepared as follows:

The diphtheria bouillon-culture is first filtered, then evaporated to one-third its volume; it is then treated with ten times the quantity of alcohol and acetic acid, and precipitated until a clear liquid is obtained; this is dialyzed for seventy-two hours and again precipitated with alcohol, and dried. The residue is a white substance, termed the diphtheria tox-albumen.

Case I.—Harry J——, aged 5 years, was taken sick March 9th, 1893. On examination found the right tonsil and uvula coated with false membrane, and the cervical glands enlarged. Parts were cauterized; next day the membranous deposit had almost disappeared, but in twenty-four hours it was reproduced in greater abundance, and in a thicker layer than at first, upon the uvula as well as upon both tonsils. The cauterization was repeated, and it was practiced again on the following day, although an appreciable amelioration was noticed, which did not turn out deceptive. On the second day of the disease a four per cent. solution of *tox-albumen* was applied freely on both tonsils. This patient recovered.

Five members of the same family, whose ages ranged from 18 to 5 years, were each inoculated in the left arm with this same tox-albumen. In three of the children, slight febrile symptoms were manifest and slight uneasiness of throat. The inoculations healed kindly and no further trouble developed. The children were kept from school and in the house all the time, occasionally in the sick-room; but no other cases developed.

Case II.—Angulo D——, aged 4 years; commencement of disease in fauces, April 3d, 1893. Yellowish spots surrounded by a deep red were visible on left tonsil; also on the pillars of the veil of the palate and back part of pharynx. They increased in thickness, and at length formed a complete crust and extented into the larynx. In a few days it passed upwards to the cavity of the nostrils. This patient was treated in like manner, and three children in the same house inoculated. Patient recovered, and no other case appeared on the premises. Febrile manifestations were apparent here in a few days after inoculation, but yielded to simple treatment.

This method seems to affect the system chiefly through certain toxic principles, which they produce and which can be isolated.

Case III.—Mrs. C——, aged 31 years; May 27th, 1893. Diphtheria here invaded the pharynx, nasal fossæ, and internal surface of the eye-lids. For three weeks the patient's life was in the balance. She recovered; but during the course of her illness she fell into an extraordinary state of adynamia. Before her attack she was in blooming health and had a remarkably fresh complexion; but from the third day of her sore-throat, after being treated with the tox-albumen, she became pale as the palest of chlorotic women, and in addition to this depravation of color, the skin presented a bloated appearance. Notwithstanding the severity of the symptoms she recovered; that is to say, the pseudo-membranous affection completely disappeared, but I had another very formidable morbid symptom to contend against. It left her with paralysis of the veil of the palate and of the pharynx, which constituted an almost complete obstacle to deglutition. Whenever she tried to take any kind of liquid it was at once returned by the nose. For some time it was necessary to give aliment only in the solid form and nourish her with chocolate prepared with meat-broth; at the same time it was necessary to plug the nose so that the column of air contained in the nasal fossæ, by presenting an obstacle to the return of the food should perform the office of the veil of the palate. This proved successful and she made a good recovery. Her husband and sister, who attended upon her, were both successfully inoculated, and neither one experienced any trouble, save a little febrile excitement. The left arm of husband was very sore for several weeks, but yielded to treatment. The sister's throat was slightly inflamed for a few days, but no appearances of ulceration or false membrane.

Membranous Croup.—The symptoms are those of inflammation affecting the air-tubes of the lungs. The mucous membrane is found inflamed and in consequence of this inflammation, the larynx, trachea, and bronchial tubes are generally lined with a membranous substance, varying in consistence; this substance, in a fluid form, fills the bronchi. In the trachea it is soon dried and there it obtains form and consistence; it is often partially detached. Evidences of inflammation may generally be discovered over the whole of the mucous membrane of the lungs; the cavity of the lungs is always full of fluid; the interstitial cells are sometimes filled with serum. We have had dissections where membranous croup was confined to the bronchi and their branches, there being no trace of it in the larynx or trachea.

While we admit that the essential character of membranous croup is a violent laryngeal tracheitis with tendency to the exudation of plastic lymph, we are prepared to assert and prove that the bacilli found in this plastic secretion is one and the same analogous to diphtheritis.

In this form there may be an absence of characteristic lesion, as when scarlatina, measles, and small-pox occur without eruption. The exudation, whatever may be its cause, consists of fibrin nearly pure. With the assistance of the microscope we find small molecular corpuscles, detritus of epithelial cells, some globules of pus and some globules of blood.

This form constitutes a nosological genus which includes many species. For example, cauterization of the pharynx with nitrate of silver, ammonia, or hydrochloric acid, immediately excites inflammations, which are followed by the formation of a pseudo-membranous deposit. The effect produced by the application of cantharides to mucous membranes is still more remarkable because cantharidic pellicular inflammation is in appearance analogous to diphtheria.

There are some diseases which are both the glory and the opprobrium of every kind of treatment; they terminate spontaneously in recovery, but no therapeutic measures can arrest their cause. Inflammatory sore-throat belongs in this class of diseases. The free surface of the tonsils is very often covered with a whitish deposit, formed either by mucous or by a plastic exudation, constituting a membranous patch. This deposit has a creamy, sometimes a yellowish aspect; it is not very adherent to the tonsil, not thick and not consistent. It is sometimes confounded with diphtheritic sore-throat.

In seventeen cases of membranous croup in which a bacteriological study was made, the bacilli of diphtheria were found in *fourteen.* In all of these cases the membrane was confined *entirely* to the larynx.

Case I.—E. C——, aged 4 years, was taken sick March 11th, 1893. Within twenty-four hours a whitish speck appeared on right tonsil. On the following day the false membrane was observed on both tonsils. The submaxillary glands were engorged. During the following days the general and local symptoms became more severe; ultimately there was a slow and gradual amendment. In three weeks the false membrane had entirely disappeared; but there was an abscess of right tonsil. The child was, however, quite well in about four weeks. Upon the second day of the disease tox-albumen was applied to tonsils, and an inoculation made on left arm of the other child, aged about eighteen months. No untoward symptoms followed, and they both made a complete recovery. The mother who attended the child would not consent to an inoculation upon herself.

Case II.—J. D——, aged 3½ years, March 16th, 1893, presented all the characteristics of membranous croup. The face was pale and of a livid tint. There was considerable dyspnea. The nasal fossæ were obstructed by a thick, grayish mucous; but on carefully examining the throat no appearance of false membrane could be detected. The patient was made to vomit, but not even temporary amendment resulted from this proceeding. The excitement and oppression were extreme. Pulse 130; auscultation revealed sonorous ronchi. The presence of exudations in the nasal fossæ, evidently diphtheritic, led me to suppose that possibly there were false membranes behind the veil of the palate, and an attempt was made to dislodge them. This greatly increased the excitement.

It is worthy of notice in this case there was never any enlargement of the submaxillary glands, a fact explained by the absence of pharyngeal lesion. Next day child was more tranquil and the dyspnea was slight; but the cough was hoarse, the voice gone, the countenance livid, and the deposit in the nasal fossæ persistent. Pulse 128; small and thready. Child died during the day.

At the autopsy the respiratory passages of both lungs were found lined with false membranes, from the larynx to the first ramifications of the bronchial tubes; and below that the tubes were filled with thick mucous. In the nasal fossæ were found the exudative products which had been seen during life. Microscopical examination revealed the presence of Loeffler's bacilli in the secretion from the nasal fossæ, but was absent in that obtained from the larynx. It was recognized by its extreme smallness, curved and broad rods. Eleven children residing in this same court were inoculated with tox-albumen, and no other case appeared there.

Case III.—Mary B——, aged 5 years. When I saw her she had been in high fever for six or eight hours. I found tonsillar sore-throat. On the second day the fever had increased two-fold; the patient was coughing and I detected pneumonia of right lung. Next day there was a slight patch of false membrane on each tonsil; the fever was intense, and the general condition of the patient presented all the characters of adynamia. On the seventh day the false membranes on the tonsils had increased in extent and thickness and had reached the veil of the palate; they were of a grayish color and exhaled a fetid odor. On the eighth day there was a discharge from the nostrils and I perceived a rudimentary false membrane at the orifice of the left nostril. In about a week there was an abatement of the symptoms. She made a good recovery in about six weeks. Tox-albumen was here applied to the throat. Four other children, ages ranging from 11 years to 16 months, were inoculated. No other cases presented themselves in this family.

In each one of the above cited cases microscopical research revealed the presence of the bacilli of Loeffler in the secretions from the throat.

In one case the secretions of the throat of a diphtheritic patient produced bacilli three weeks after the temperature was down to normal.

As regards the inoculation, the symptoms in nine of the cases were as follows: On the second day there was visible in the place were the puncture was made a small red pimple. About the fifth day it became slightly vesicular. About the eighth day a pustule had formed surrounded by a red areola. In from twenty-two to twenty-four days the inoculation had completely dried up. The lymphatic glands in the axilla began to be turgid about the ninth or tenth day.

In one case a very red areola appeared, as large as a five-cent piece, and was covered with small vesico-pustular satellites.

About the eighth day each one of the patients inoculated had headache and pains in the loins, and in two cases vomiting. There was no eruption of any kind perceptible. In three of the cases there was swelling of the tonsils and the appearance of inflammatory sore-throat, but *no ulceration* or membrane formed. Several of the inoculated complained of a disagreeable taste in the mouth, and the breath was offensive.

Cases of scarlet fever are now under surveillance, but the demonstrations are not deemed yet sufficiently characteristic to warrant report of same.

1529 S. Broad St., Philadelphia.

THE TRIALS AND TRIBULATIONS OF A SURGEON.[*]

By C. R. Pontius, M. D.

On June 17, 1891, at 10 o'clock, A. M., I was requested to see a man two miles west of the city, whose right leg had been injured while assisting to unload some heavy iron pieces to be used in the construction of an iron bridge. I arrived there promptly and found him lying by the road-side on the sod, suffering from shock and intense pain. I gave a hypodermatic of ¼ grain of morphine and $^1/_{100}$ grain of atropine, and about one ounce of whiskey by the mouth.

I learned that a piece of iron weighing about 1400 pounds had fallen upon his right leg about 3 inches above the ankle-joint, producing a fracture of both tibia and fibula at junction of middle and lower third, compound and severely comminuted. At the lowest point was a wound on either side of the leg ¾ inch in diameter running down to the bones; in fact, the bones could be seen, and blood was flowing freely from both openings.

I applied a large quantity of bichloride gauze, enveloping the entire limb from ankle to near the knee, over which I applied tightly a roller bandage preparatory to removing him to his home in Balleville, about three miles distant, at which place I expected to dress his leg properly. The patient was placed on a bed in a carriage, the leg elevated and properly supported, and thus started on his journey. I returned to my office for more antiseptic dressings, instruments and assistance. Dr. Vermilya went with me, and we arrived at the injured man's home before he did, and proceeded at once to arrange for his care. All instruments were placed in a 3 per cent. solution of hot carbolic acid wash.

When the patient arrived I found the dressings and the bedding under his leg soaked with blood, and some had run through on the floor of the carriage. He was placed in bed, and all dressings removed at once; blood in considerable quantities was flowing from both wounds. We agreed that it was highly important to check the hemorrhage, as it was profuse and was telling on the patient. I cleansed my hands carefully with soap and antiseptics, while the anesthetic was administered. The patient's leg was scrubbed with soap and water, then washed with ether and finally with bichloride solution, 1–2000. Blood still flowed freely from the wounds.

I made an incision 2 or 3 inches long over the comminuted portion of the tibia, found the lacerated vessels and arrested the hemorrhage by torsion; the blood still flowed from the wound over the fibula. I also made an incision over the comminuted portion of the fibula and arrested the hemorrhage there by torsion also. I then irrigated with hot antiseptic solution and removed all blood clots. I might have removed several fragments of broken bone with my fingers if I had chosen to do so, but hoping they would unite I let them alone. I introduced a rubber drainage tube at lowest point and closed the incisions with silk sutures, after which I again used the irrigating solution, dusted iodoform over the parts, adjusted the fractures, applied bichloride gauze, absorbent cotton, weight and pulley extension apparatus, lateral splints of leather, etc. I was very careful that the leg was of proper length and shape; my assistant also examined it carefully.

I re-dressed his leg antiseptically twice within forty-six hours, and found it all right and doing very nicely; no hemorrhage.

I had charge of the case forty-six hours, at which time I was informed by the township trustees that the patient was a pauper, and as they had a physician hired by the year for their township, they expected him to attend all pauper cases; and as they had no power to employ two physicians, I was relieved.

I have been informed that antiseptic treatment was not carried out; septic fever,

---

[*] A paper read before the Nothern Ohio District Medical Society, at Fremont, Ohio, Sept., 1893.

I understand, followed; suppuration was profuse, and the man was laid up for several months. About a year after he was hurt a piece of bone came away.

For my pains and extreme care in carrying out every detail of antiseptic treatment as recommended by our most able surgeons, thus hoping to save the limb from amputation, I received notice in February following that the injured man had sued me for the moderate sum of $5000.00 for malpractice, and that I was expected to appear in court March 12, 1892.

This was the first time that I was ever sued, or threatened with suit, as far as I know. The plaintiff was an illiterate pauper, and unable to sign his own name. I knew he had no case against me, but to convince a jury of twelve men who are not familiar with surgery, especially with modern surgery, is something not at all certain. I at once employed three of our ablest attorneys and commenced the bulwarks of defence.

The attorneys of our town succeeded, in two suits of a similar nature within the last five years, in getting money out of physicians in practice here, which evidently gave them the impression that I would comply with their request and pay money to them that they had never earned, and were greatly chagrined, when they found that they had a fight on their hands. The time set for trial arrived, and they were not ready; case continued. In May following some of their witnesses were going to move to Columbus, and it was arranged to take their depositions on a certain day; that day arrived and it found my attorneys and myself at the appointed place of meeting, at the hour named, ready to listen to the depositions to be taken and also to ask any questions we might desire. Instead of there being several witnesses to examine as was reported, there were none in sight; but the plaintiff's lawyer said that they had concluded to take no depositions as the witnesses had kindly consented to *return* from Columbus in order to attend the *trial*.

As it costs money to travel, I suggested that possibly they would be pleased for me to advance sufficient to meet impending needs. The sarcasm was accepted but no money changed hands.

Next term of court arrived and the plaintiff's lawyers desired to settle for several thousand dollars *less* than the amount sued for; case continued until next term. Settlement urged by them, and as quickly ignored by me.

Court was in session when Gen. Hayes died, and was dismissed for that week; but the lawyers for plaintiff had subpenaed twenty (20) witnesses to appear at court against me when they knew no court was being held. This number continued to report again when the term was resumed; the object of all this was evidently to bring me to terms and propose settlement, which I would never do in any case, or I would have enough costs to pay to bankrupt half a dozen ordinary doctors. Settlement was urged in various ways, through different channels, and always refused by me.

April term of court, 1893, convened; day set for trial, but plaintiff was not ready. I *insisted* on the case being tried at once, but was informed by the court, for certain reasons known to lawyers, that I would have to submit to a transposition or a continuance. I at once chose the former. Twenty (20) witnesses were attending regularly, subpenaed by plaintiff. The plaintiff's lawyers evidently turned the screws as tight as they possibly could, but their tactics utterly failed to bring the result they so earnestly desired.

The day for trial arrived again, and all were ready; a special jury was impaneled, and finally one of the plaintiff's lawyers concluded that the stock in their case was considerably below par, and plead for fifty ($50.00) dollars in settlement. He was informed that there was but one way to settle and that was to pay their costs and dismiss the suit. That was at once done, and he so *announced* to the *court* and *audience*.

The termination of the suit in this manner proved conclusively that my presumption was well founded in that they were after money that was not due them, but in this their schemes proved a flat failure, greatly to their sorrow and my satisfaction.

I am credibly informed that plaintiff's leg is ½ inch short.

A syllabus based on what our prominent authorities say regarding treatment of compound fracture of the leg may be given as evidence that the author of this paper did not deviate from the proper course.

I quote from *Principles of Surgery* by Senn (page 221):

"In compound fractures, the tissues immediately over the fragments should be incised sufficiently so that the fractured ends can be turned out.

"The infected medullary tissue should be scooped out with a sharp spoon, and all clots and necrosed tissue removed; the parts are then thoroughly irrigated with corrosive sublimate 1 to 1000, or carbolic acid 1 to 20, after which the whole surface is dried and brushed over with a 10 per cent. solution of chloride of zinc. Pockets and sinuses which cannot be reached with the sharp spoon, can be rendered aseptic by pouring in peroxide of hydrogen, which in such cases is a remedy of great value.

"The bones are then placed in proper position, a number of counter openings made, and a sufficient number of tubular drains introduced; after which a copious antiseptic dressing is applied and the limb properly immobilized, great care being taken to prevent decubitus or gangrene from pressure by protecting the parts exposed to pressure with antiseptic cotton."

On page 24, he insists that "all hemorrhage must be arrested," quoting von Bergmann, who says it is one of the most urgent and important indications in the treatment of wounds, and his teachings merit the attention of every prudent surgeon.

Tillman's Surgery, Vol. 1, p. 474, 1891:

"The antiseptic procedure in grave complicated fractures and extensive injury of the soft parts consists in thorough disinfection of the whole wound surface, and the parts extending far beyond. Should the opening of the wound not be sufficiently large, in order to inspect the whole cavity and disinfect it thoroughly, it should be enlarged with the knife under Esmarch's bandage for extremities. Then you examine the seat of fracture, irrigate the whole wound cavity with $^1/_{10}$ per cent. corrosive sublimate solution, remove shreds of lacerated and bruised tissue with scissors and forceps, check the bleeding, carefully remove foreign bodies, bullets, etc., and incise deeper wound channels and pockets, etc., etc. If necessary, pull the fragments out with sharp hooks or bone-forceps to get a proper view of the tissues underneath and for the purpose of disinfection. At the deeper parts make counter openings for short drainage tubes; every pocket or recess of the wound should be drained carefully."

Prof. Frederic S. Dennis, of New York, in an able article on Treatment of Compound Fractures, based on an analysis of one thousand cases, published in the *Medical News*, April 19th, 1890, says:

"I have made it a rule of practice at Harlem Hospital that antiseptic irrigation should be employed at the station-house, or upon the side-walk, before the temporary splint is adjusted, and that at once after the irrigation, a clean antiseptic dressing be applied before the patient is lifted into the ambulance."

Treatment at Hospital:

"Having made aseptic all the adjacent parts, the wound itself requires attention. All blood and débris should be washed away by a stream of warm bichloride solution (1 to 4000). The interior of the wound should be thoroughly irrigated with the same solution, and all hemorrhage completely arrested. Loose pieces of bone not attached to periosteum should be removed. All pieces of fascia, fatty tissue, muscular shreds, and lacerated integument should be cut away with scissors, and then a final ablution made. The drainage tube should be introduced into the bottom of the wound, and if the wound is so situated as to drain well, there is no necessity for a counter opening. The tube is then cut off flush with the surface of the skin, and fastened by a safety pin. The wound is now closed by cat-gut sutures, which completes the operative technique."

Dr. Dennis shows that the mortality by

thorough aseptic treatment is reduced from 40 to 60 per cent. according to the old hospital reports to (as in his 1000 cases) one-seventh of 1 per cent.

I will also quote from an article by Dr. Herman Mynter, of Buffalo, N. Y., who read a paper on "Treatment of Compound Fractures," at the meeting of the N. Y. State Medical Society, at Albany, in February, 1892, published in the *International Journal of Surgery* the month following. He says:

"For several years I have employed a uniform and more radical method of dealing with this class of accidents, and the results have been as encouraging as the method is logical.

"A compound fracture is simply a contused and lacerated wound, as little inclined to heal by first intention as any other contused and lacerated wound, not to mention the fact that the wound is often, even in simple punctures, filled with dirt, the sharp ends of the bones having gone through the clothing into the ground. I have rarely examined such a wound without finding foreign particles in it. To seal up such a wound with collodium is as unscientific as it is dangerous, even if it occasionally heals without any accident occurring. I have, therefore, in every case of compound fracture for several years, endeavored to change the contused and lacerated wound into a simple incised wound in which I confidently might expect healing by first intention. The leg is as thoroughly disinfected as can be done with soap, brush, razor, and corrosive sublimate. The wound, even if a simple puncture, is then freely incised, an Esmarch's bandage having been previously applied. All crushed and lacerated, or blood-suffused and suspicious looking tissues are thoroughly removed with curved scissors, and this is done whether they be formed by skin, subcutaneous tissue, fascia or muscle. I prefer to take away too much rather than to leave anything suspicious behind. Every pocket is opened along its whole length and treated the same way. If deep-seated pockets be found between the muscles, large openings are made in the most convenient spot in order to deal intelligently with them. Loose splinters are removed, and if the fracture is severe or comminuted, the ends of the bones are forced out through the wounds, thoroughly cleaned, and the blood clots removed between and behind them. Sharp points are removed with bone-scissors, and in comminuted fractures the bone ends are occasionally sawed off transversely. The Esmarch's bandage is thereafter removed in order to find and ligate bleeding arteries, and then re-applied.

"The wound having been thoroughly disinfected with corrosive sublimate solution (1–2000), and the fractured bones having been brought into apposition and carefully held there by the chief assistant, the different wounds are closed with cat-gut sutures, with the exception of about one-half inch in each wound, which is left open for drainage. A strict antiseptic bandage is applied, and this covered with plaster-of-Paris bandage taking in both knee and foot."

I might quote many other modern authorities bearing me out, but I would simply repeat the above, and what is commonly embodied in the principles of antiseptic surgery of to-day. The choice of splints is left with the attendant, but as soon as possible our authorities seem to think the plaster-of-Paris splint should be applied, with windows cut over the wounds so the attendant can inspect the wound whenever he desires to do so.

How frequently persons sustain an injury, a fracture perhaps; he makes a good recovery from a surgical standpoint, but he is reminded occasionally that he is not a better man than before he was hurt, perhaps not quite as good, but this sequel was not preventable. He goes the rounds among the doctors seeking for some physician to say that he was mistreated. Usually doctors are very cautious in advising such a person; however, the *kind* of a doctor they are looking for, is sometimes too easily found, and is glad of the opportunity to reduce a fellow-practitioner's standing as low as possible in the eyes of the people, throw him into a lawsuit for malpractice, and thus cause him much expense and annoyance. Such work is unkind, unmanly, and unprofessional.

Physicians of to-day usually are well informed men and endeavor to render proper treatment at all times; and it seems to me that as gentlemen in a noble profession it is our duty to sustain each other in the right, and save a brother physician from legal difficulties if possible, for we know not how soon we may be forced to defend ourselves in court, and may need assistance.

Fremont, Ohio.

AN INDEX MEDICUS FOR BUSY PRACTITIONERS.

By R. B. McCall, M. D.

I have a plan for an *index medicus* that will make it easy for the busy physician to provide himself with a trustworthy reference record of all his important journal reading. Some way to keep for instant use the valuable formulas, remedies and methods in interesting and difficult cases in the experience of others, which we find narrated in our medical journals, is assuredly a desideratum.

How often does it happen, after exhausting in vain our individual resources, we are still at a loss what further to do, and groping about in uncertainty, try to recall some hint, some remedy or some prescription that is only dimly remembered having been read in some article or journal. The issue may not be a grave one, but the situation will be perplexing; on the other hand, the stake may be one's reputation and pecuniary interest, or the still graver one, of human life.

If the information hidden away could be reached *in season*, a sometimes unpleasant experience might be avoided, and expense of an unnecessary consultation saved.

To illustrate, suppose you are treating threatened abortion; you desire the help of a formula which may prove more effective than anything hitherto employed, and remember one indistinctly which seemed to possess superiority when reading account of cases illustrating good it had done. The article, note, or correspondence may be in the American Therapist, *Medical Summary*, *Medical Brief*, etc.—but *where?* In your haste you pick up first one journal, then another, but the thing sought for is not found.

Your case is one of eclampsia or of puerperal fever. You may decide to treat first named malady by blood-letting, hypodermics of morphine and rectal injections, or by heroic doses of chloral, or by hypodermics of Norwood's tincture. If inexperienced, with no acquired or experimental knowledge, treatment will likely be limited to one or other. Suppose you have bled and given hypodermic of morphine and rectal injection, and, unsatisfied with progress, wish to make a trial of Norwood's or of chloral; but having no practical knowledge, you cast about for aid and must find it in consultation with another, who may be like yourself; then a third party will be required.

The condition about which you so earnestly seek light may be one of those rare case of singultus, or simply an instance of nose-bleed, an attack of enteralgia, an old subject of diabetes or gallstone—whatever the subject matter of inquiry, reading has been more or less widely directed and therefore should afford light to guide and help you.

In the practice of all there continually arise emergencies that demand help from careful research, and nowhere is this so abundantly found as in the pages of our current periodicals, where the grain has been garnered after separating the chaff.

A well edited medical journal is a treasury of knowledge gleaned by the painstaking, conscientious editor from the broad fields of fact, invention and experimental research. In our book-cases, filed away, or scattered about office, in one place and another, are these treasures that for lack of means of ready reference are almost valueless to us. And like Richard III, in dire extremity we sometimes frantically shout for what we desperately need, and, like him, feel for the moment that we would gladly embrace the opportunity to give our kingdom, not for a horse, but for the wherewithal to relieve our perplexity and discharge responsibility.

As we all know, the sickness that occasionally accompanies pregnancy is well-nigh unbearable and difficult of control, and while the experienced have at hand every tried and proved method and remedy, many do not possess them. To the latter any device that, without loss of time, furnishes a key to desired information must be hailed with pleasure. To supply this want, and to render it a pleasant and profitable task to turn to good account any item in any periodical read, the accompanying plan is respectfully offered. It is only a suggestion because writer has not taken time to elaborate. He hopes, however, the outline submitted may contain "a hint to the wise," and prove that the practical test and application of a method is the correct measure of its utility.

Among the reasons that may be advanced in its favor are: That patient gets the fullest measure of benefit from the physician's knowledge, increased by that of others who may or may not have been wiser than he, and the added assurance of doing to the fullest extent what he is able for relief and restoration to health; and furthermore, and lastly, he thereby builds up himself worthily in his own just esteem and in the appreciation of his clientage.

By way of explanation:

First place a number at top of title-page, which may be made with pen and red ink, or stamped.

A bound book, four or six inches wide, should be laid off by a single perpendicular line near left border, leaving a narrow space on left side for subject or title, plainly written or printed in large, distinct letters. In the larger space to the right, number, name and date should be inserted, with number of page on which title may be found. Thus:

Epilepsy	No. 23—Am. Therap.—7-'92-p. 213.

Foregoing arrangement is simple and provides for instant reference; but that it may be entirely satisfactory, journals of same name should be filed away by themselves in such a manner that top of titlepage can be seen with least delay and trouble.

Chorea	No. 5—Am. Therap.—5-'93-p. 280.
"	No. 3—Med. Summ.—7-'91-p. —.
"	No. 7—Med. Brief —11-'89-p. —.
Singultus	No. 20—Med. Summ.—11-'93-p. 240.
"	No. 6—Am. Therap.
"	No. 24—Lancet-Clinic.
Intra-Uterine Injections	No. 20—Int. Jour. Surg.—3-'93-p. 67. No. 2—Med.-Surg. Bull. No. 80—Med. Era.
Pertussis	No. 6—Am. M.-S. B.—11-'93-p. 1061.
"	No. 8—Med. Mirror.
Diphtheria	No. 3—Med. Review—9-'93-p. 203.
"	No. 17—Med. World —9-'93-p. 319.
"	No. 8—Med. Times & Reg.
"	No. 9—N. E. Med. Monthly.
Poisoning by Lead	No. 6—Med. News—12-'83-p. 589. No. 5—Med. Record.
Pneumonia	No. 5—Am. Gyn. Journ.—1-'92-p.—
"	No. 8—Journ. Mat. Med.—4-'92-p. 91.
Endometritis	No. 5—Am. Gyn. Journ.—4-'92-p. 223.
"	No. 2—Retrospect.
Quinine as Abortifacient	No. 8—Med. & S. Rep.—12-'87-p. 829. No. 3—Eclectic Med. Journal.
Cold Bath in Typhoid Fever	No. 3—Bacter. World—1-'92-p. 96. Med. News.
Dysentery	No. 1—Med. World—9-'93-p. 308.
"	No. 6—Peoria M. M'ly—10-'83-p. 233.
"	No. 3—Therapeutic Gaz.
Apomorphine for Alcoholism	No. 10—Am. Therap.—9-'93-p. 90. No. 3—Practitioner. No. 4—Med. Brief.
Dyspepsia	No. 3—Notes N. Rem.—10-'93-p. 71.
"	No. 8—Therapeutic Gaz.
"	No. 8—Am. Therap.
Diarrhea	No. 2—Med. News.
"	No. 6—Med. Times.
"	No. 8—British Med. Journ.
"	No. 10—London Lancet.
Abortion	No. 3—Am. Gyn. Journ.
"	No. 7—Braithwaite's Retrospect.
Eclampsia	No. 7—Chic. Med. Times—1-'92-p. 18.
"	No. 4—Times & Reg.
Cactus as a Heart Tonic	No. 2—Am. M.-S. Bull. No. 8—Med. Brief.
Ergot in Labor	No. 2—Med. News. No. 6—Med. Summ.
Cold Water Inj. in Dysentery	Am. Therap. Med. Era.

Above is sufficient to illustrate what writer intends for a *home-made* index medicus. A few subjects only have been selected, and these without any special reference.

Some subjects are of more importance than others, are more thought of and written about, because some diseases are of more common occurrence, or demand more skillful management; hence, such titles as abortion, eclampsia, diarrhea, cough, Colles' fracture, epilepsy, dysentery, quinine, antipyretics, tonics, management of perineum, collyria, etc. etc., may require an entire page.

For the coming year a book of one hundred pages, which will accommodate about five hundred names, may be tried; indeed, a new book may be used every year, for which purpose it will only be necessary to copy out titles from the old one.

Hamersville, O.

Note.--An improvement is suggested in arranging subjects, as follows:

A blank "record" book is purchased, containing about 100 pages, and each page headed in accordance with the *second* vowel. Thus, beginning with Aa, we proceed with Ae, Ai, Ao, Au, Ay; Ba, Be, Bi, Bo, Bu, By; Ca, Ce, Ci, Co, Cu, Cy, etc. Emmenagogues would be found under Ee; Abortion under Ao; Epilepsy under Ei, etc. This arrangement, it seems, would give the plan more system and materially enhance its value.—Ed.

AN EASY METHOD OF KEEPING WARM.

By Ernest B. Sangree, M. D.

I should like to call attention to an easy method of warming one's self when other and more common means are not available. It is a method that I suppose is well enough known to the profession, but probably not often used. I allude to warming the body by merely taking deep inspirations.

On the very cold afternoon of this winter, though walking briskly along, I was uncomfortably cold; feet and hands were very cold, and my ears so chilled as frequently to require the application of my heavily gloved hands. In addition, the whole surface of the skin was unpleasantly chilled; "creeps" ever and anon running up and down my spinal column and radiating thence over the body and extremities; in short, a condition that every reader of this little article has doubtless many a time experienced. I then began taking an exercise often employed before with benefit; deep forced inspirations, holding the air as long as possible before expulsion. After a few inhalations the surface of my body grew warmer, and a general sense of comfort pervaded me. Continuing, the next part to feel the effects of the effort was my previously frigid ears; they grew agreeably warm, and within the time required to walk three blocks, at the previous pace, hands and feet partook of the general warmth and I felt as comfortable as if the same length of time had been passed by a glowing fire.

The happy results obtained from this simple method are probably owing to several causes:

The cold of course chills the surface of the body and contracts the superficial blood-vessels, usually affecting first hands, feet and ears, and afterwards the general body surface. Contraction of the blood-vessels results both in less blood to the part and in stagnation of the current, thus rendering the tissues still less able to resist the cold. Deep forced inspirations not only stimulate the blood-current by direct muscular exertion, but also by compressing and expanding the lungs, the flow of blood is greatly hastened through this organ, and on account of the increased amount of oxygen inhaled, this abundant supply of blood is thoroughly oxygenated, tissue metabolism is increased and more heat necessarily produced.

Many times unavoidable exposure as in riding, driving, standing and the like, for a longer or shorter time in the cold, has been the cause of severe and even fatal congestive troubles, such as pleurisies and pneumonias, and a means of quickly stimulating the flagging peripheral circulation which a person has always with him, and which can be employed without moving a step, is one that ought not be neglected or forgotten.

2020 Arch St., Philadelphia.

CLINICAL OBSERVATIONS ON NUCLEIN SOLUTIONS.

A Preliminary Report.

By John Aulde, M.D.

Since the subject of "nuclein-therapy" is now attracting such widespread attention, and, moreover, since it gives promise of such important results in the domain of therapeutics, I have deemed it expedient to record here, in the form of a preliminary report, some clinical observations collected within the past twelve months. My attention was first directed to this subject through the reports of Constantin Paul, relating to the employment of "cerebrin" in nervous diseases, and about the same time the publications of Hammond, of this country, concerning the therapeutic value of certain "organic extracts." Of course, the investigations of both hinged upon the claims made for Brown-Sequard's testicular fluid, and while the methods of preparation were apparently conducted with sufficient care to warrant the acceptance of the reports by clinicians, yet there seemed to be lacking a certain definiteness which is the marked feature of all scientific investigation.

The publication of Professor Vaughan's researches presented the matter in a tangible form, viewed from a scientific standpoint, and gave me renewed courage to proceed with my studies. Previous to the publication of Vaughan's paper, however, the use of thyroid extract had created no little excitement, and aroused more or less incredulity in the minds of the medical profession, but later reports indicated that thyroid extract and dessicated thyroid possessed distinct therapeutic properties beyond the treatment of myxedema. Under the circumstances thus outlined, it was but natural to generalize with a view to determine whether or not the use of thyroids involved a principle, and I think there is at present a consensus of opinion that this method involves important relations which have hitherto been entirely overlooked. These questions have been so well worked out by Vaughan that I not need here refer to them in detail. It will be sufficient to say that the investigations all point to the nucleus of the white blood-corpuscle as the active element in the production of an antiseptic condition of the blood. Nuclein, a phosphorized proteid, is a substance obtained from these cells, and it may also be obtained from yeast-cells, from the yelk of the egg and from different organs of the body, such as the thyroid and thymus glands, from the spleen and from the testicles. Professor Germain Sée has reported successful results from the use of nuclein obtained from the blood, in the treatment of pneumonia and pleurisy. Dr. Althaus, of London, has made some tentative experiments with nuclein obtained from the spinal cord and brain substance.

Notwithstanding the fact that nuclein solutions are antiseptic in themselves, it is doubtful if they act as such when introduced into the human economy, either through the stomach or hypodermatically. It is more reasonable to believe that they stimulate leucocytosis, or rather, that they increase the activity of the nuclear body in the leucocytes. Clinical observation points to this as the most plausible theory, owing to the size of the dose required, the length of time necessary to notice favorable results, together with the entire absence of untoward effects. Unfortunately, my investigations have been interrupted from time to time on account of inability to procure material, but I have used these solutions in quite a variety of cases, both acute and chronic, as the accompanying record will show. A word should be added to the effect that nuclein solutions are indicated in all conditions depending upon, or associated with, a disordered state of the blood, and while I shall include only a limited number of cases coming under observation within the past few months, I can readily recall some most brilliant results which occurred among children during the past summer.

ACUTE DISEASES.

Case I.—*Influenza.* Mrs. B., aged 40, passed through an attack of influenza which subsided under the usual methods, with the exception of a slight cough. The cough was neither hard nor frequent, but the character of the sputa was such as to indicate an insidious bronchial catarrh; it was tenacious, ropy and greenish-yellow. The ordinary tonic treatment seemed to have no effect upon it, but the whole trouble promptly disappeared within twenty-four hours on the exhibition of nuclein solution. The results were, indeed, most remarkable; so marked was the change that I could scarcely believe the report of the patient.

Case II.—*Influenza.* Mrs. C., aged 60, consulted me at her home after she had been suffering from what she called "a bad cold" for several days. There was considerable cough, with little or no expectoration, but she had fugitive pains all over the body along with frequent chilly sensations. These chilly sensations I regarded as indicating a disordered condition of the blood, and accordingly prescribed nuclein solution, which not only relieved them, but allayed the pains as well, and the patient made a prompt and uninterrupted recovery.

Case III.—*Influenza.* Mrs. C., aged 25, consulted me at the office, having all the symptoms of a mild influenza; the pulse was 120, the respiration accelerated, and the temperature two and a half degrees above normal. Nuclein solution was sufficient to arrest the development of the disease, and the patient made a prompt recovery without other treatment.

Case IV.—*Influenza.* Mrs. D., aged 45, is quite a stout woman, and towards the end of her attack of influenza there was some trouble with the bowels. The pulse at this time was not rapid, but the temperature was two degrees above normal, and the patient expressed herself as "powerful weak." I need only add that nuclein solutions alone counteracted the systemic derangement, and she appeared at the office three days later congratulating herself on having recovered from such a serious illness so quickly.

Case V —*Influenza.* Mrs. E., aged 33, had been sick for over a week when first visited. The temperature at the time was 103.5; pulse 130; there was a harrassing cough, and with the expectoration came considerable blood from the mouth and from the throat. She had been unable to eat, and as a consequence presented rather an unfavorable appearance. Under ordinary treatment, I would have been doubtful of a favorable issue, broncho-pneumonia being threatened, but with the exhibition of nuclein solution the condition changed for the better within a few hours. Indeed, on the second day after the first visit the patient was able to eat a whole pound of well-cooked beef-steak, and enjoyed it. The only additional treatment consisted in the administration of small doses of bryonia tincture for the purpose of allaying chest-pains.

Case VI.—*Influenza.* Mrs. F., aged 80, was suddenly attacked with all the symptoms of influenza. According to the report given by her daughter, she was absolutely helpless on the night before the morning of my visit. The physical condition of this patient is anything but promising. She had a fall down a flight of stairs last summer, and has hardly recovered from the effects. The patient had considerable fever, with a rapid and weak pulse, but she was perfectly conscious, and seemed quite anxious to know if she would get well this time. For twenty-four hours she took nuclein solution, with small doses of codeine sulphate for the cough, followed by suitable medication, of which nuclein formed an important part. She made a good recovery in less than a week.

Case VII.—*Follicular Pharyngitis.* Miss G., aged 26, had suffered for several days with a sore throat which persistently resisted domestic treatment. Deglutition was painful, the pulse was 114 and the temperature 102. There was no appetite and the nights were sleepless. An examination of the throat discovered numerous "spots" on the pharyngeal surface, and on both tonsils; there was profuse secretion, but no perceptible odor. The first dose of nuclein solution created a favorable change, so that within an hour the disorder showed a disposition to subside, and she made a perfect recovery without further medication than the solution mentioned.

Case VIII.—*Tonsillitis.* Emma, aged 10, had been confined to the house for several days on account of a sore throat. The mother said the child was restless at night, refused to eat, and also that the bowels were stubbornly constipated. An examination of the throat disclosed diphtheroid exudations on both tonsils, with an angry-looking and congested mucous membrane. In addition to solution of nuclein she received small doses of mercury biniodide, with a view to secure both the local effect of the antiseptic and the constitutional and hepatic action. On the following day the exudation had all disappeared, the bowels had been moved, and although the fauces looked somewhat inflamed, there was no pain and she took her meals as prescribed—a light diet. The solution alone was continued and she made a perfect recovery, returning to school in a few days.

Case IX.—*Tonsillitis.* Mrs. H., aged 30, had an attack of tonsillitis, an affection from which she had previously suffered at irregular intervals. It was undoubtedly due to derangement of the digestive apparatus, to which had been added a little cold as the exciting cause. The tonsils were much inflamed, exquisitely tender and had the characteristic features of a classical parenchymatous tonsillitis. The pulse was 120, temperature 102.5, and the patient felt very weak and depressed. She began taking solutions of nuclein at two o'clock in the afternoon, and on the following day felt well enough to resume her work, that of managing a loom in a cotton manufactory. A friend engaged in the same work, attacked in the same manner, was confined to bed for a week and was unable to return for two weeks.

Case X.—*Tonsillitis.* Mr. G., aged 26, was taken suddenly with sore throat, nausea and vomiting; he was seen in bed late in the afternoon. He presented all the indications of "biliousness," and had a pulse of 130 with a temperature of 103.5. The suspicious odor emanating from the mouth, together with the high temperature, prompted me to exclude all persons from the room except his nurse. Solution of nuclein and small doses of mercury biniodide were given together at short intervals, and on the following morning the pulse had decreased to 90 with a temperature of 101. Improvement began with the first dose. On the third day the pulse and temperature were normal in every respect, and with suitable treatment he made an uninterrupted recovery, attending to business on the fifth day from my first visit. It should be mentioned that the biniodide was given *only* during the afternoon and evening of the first day—five doses of one one-hundredth of a grain each.

Subacute and Chronic Diseases.

Case XI.—*Recurrent Malaria.* Mr. H., aged 34, gives a history of an attack of malaria, and ever since that time he has suffered from occasional "bilious" (?) attacks, and regularly in the spring and autumn he is seized with an attack presenting all the features of malaria. Hitherto, quinine, with or without podophyllin, has been my main reliance, but during the last attack, the nuclein solution seemed to afford much more prompt results. The greenish hue of the skin, poor appetite and the "tired" feeling subsided in the course of a few days, and the patient seemed to feel highly elated that it had not required the usual precautionary treatment to prevent its becoming tedious.

Case XII.—*Recurrent Malaria.* Mr. H., aged 32, is also subject to recurrent attacks of malaria. There is a history of these attacks as well as the original seizure, and besides, he resides in a section of the city which is affected by miasmatic influences. He has night-sweats, but no distinct chills, and calls it "dumb ague." In both spring and autumn, nuclein solution cleared up the disease in a few days without further medication.

Case XIII.—*Recurrent Malaria.* Miss J., aged 25, has suffered for a long time with all the symptoms of malarial toxemia. The patient is debilitated, the appetite poor, and she suffers constantly from digestive disturbances. Quinine is effective for the time being, but as soon as discontinued all the symptoms return. After taking nuclein solution for the short period of one week, these malarial manifestations disappeared.

Case XIV.—*Recurrent Malaria.* Mr. K., aged 26, a book-keeper, suffers from morning nausea, obstinate constipation, and about once a week, has a serious time; to use an expression he coined to describe his condition, he has the "rams." Nuclein solution proves effective here in breaking up the recurrence of these paroxysms, and along with other medication he made a perfect recovery in a short time.

Case XV.—*Recurrent Malaria.* Mr. S., aged 45, a machinist, gives a history of malaria, with recurrent attacks during the spring and autumn. He has long been under treatment, and feels greatly discouraged, because he believes that the disease is affecting his lungs and that he will eventually die of consumption. Treatment directed to the condition of the liver at his first and several subsequent visits resulted in perceptible improvement, but there still remained a languid feeling which he cannot throw off. A trip of several weeks to the mountains proved beneficial, but yet he does not feel quite right. In this case, after the absolute failure of the most approved methods and the most strict attention to diet, the patient did not feel quite as he would like to, but the matter was promptly cleared up in the course of a week by the exhibition of nuclein solution; he has been enjoying perfect health for the past six months.

Case XVI.—*Recurrent Malaria.* Mrs. M., aged 57, had malaria when she first came from Scotland to the section of Philadelphia in which she is now living, forty-six years ago, and has had it nearly every spring and autumn since that time. She has been for all practical purposes an invalid, we might say, a chronic invalid, for many years. The exhibition of nuclein solution was followed by the most remarkable effects; she seemed to regain her buoyancy and felt bright and cheery, regained her appetite and felt twenty years younger. This patient took nuclein solution for the period of two weeks, and several months later I learned from her son that she was enjoying excellent health.

Case XVII.—*Anemia.* Mrs B., aged 30, has been an invalid for a year or more. Two of her brothers, living at her father's home, have died within a few years without apparent cause. They seemed to gradually waste away and finally died from asthenia. There is a distinct anemic cardiac murmur, and usually the feet show a disposition to swell towards evening, although there is no renal disease. The diet has been properly selected, suitable tonics and purgatives have been used, but without producing anything more than a temporary effect. Most of her time is spent in bed, since she has not the strength to walk about. Upon giving her nuclein solution the whole aspect of the case changed, and in a few weeks there was no further demand for medication.

Case XVIII.—*Chronic Eczema.* Mrs. V., aged about 60, has suffered more or less for the past fifteen years from eczema. Every now and then the disease seems to take a new start, and notwithstanding the most active medication under the direction of several competent physicians, she makes no permanent improvement. On her first visit to me, the whole body was covered with an eczematous eruption that appeared to be in full bloom, and she suffered excruciating torments from the persistent itching. In addition to one spot on the shin about the size of a dollar, where the surface was often broken, she also suffered from itching of the genitalia and rectum. She was unable to sleep, and life had become a burden. In one week's time, with the exhibition of nuclein solution internally, the entire surface of the body was as smooth and soft as that of a child; the itching on the leg was much improved, and the vulvar trouble was better although local treatment completed the cure. For this latter, hot douches with carbolic acid and glycerin were advised, and the solution continued with the result that there was a perfect recovery.

It would be most interesting to go on recording case after case, but time and space forbid, although it seems desirable to include in this report the two following:

Case XIX.—*Night-sweats.* Mr. W., aged 75, has just passed through an attack of influenza. He is a farmer and lives at some distance, so that I do not see him as often as I would like to. The attack referred to occurred about two months ago, and I was advised by mail about a week after my last visit that the patient was having very severe night-sweats. At this time he told me he would go to bed at the usual time, putting on a clean, dry, heavy-weight under-vest, and that by two o'clock in the morning it would be so thoroughly saturated with perspiration that the water could be wrung out of it. This was a regular occurrence, and of course the patient felt very weak and depressed. Beginning at ten o'clock in the morning, the patient took a dose of nuclein solution very two hours until bedtime, and had only a light sweat that night; none the following night, and up to the present time, they have not returned.

Case XX.—*Bright's Disease.* Mr. K., aged 54, has always enjoyed pretty good health until about a year ago, when he had a prolonged attack of articular rheumatism. For the five weeks preceding the time I first visited him, he had been unable to lift his legs, so heavy were they from the edema. The belly was full of water, and the scrotum was as large as a man's two fists. It had been tapped about two weeks before, but without any appreciable benefit. This patient had been taking Basham's mixture, but this was discontinued when I took him in hand. The urine was scanty, acid, sp. gr. 1.016, and when boiled, showed a deposit of about fifty per cent albumin. The pulse was rapid and there was high arterial tension with marked dyspnea. At the end of a week he was put upon solution of nuclein, with trinitrin, one two-hundred-and fiftieth grain every two hours, and in a week's time showed great improvement, the percentage of albumin being reduced to about one-tenth. It will suffice to say that at the end of two weeks, the swelling of the legs had subsided, the water in the belly had disappeared, and the patient felt very much better, having no discomfort from shortness of breath which was a distressing feature when first seen. To be sure, it did not cure the disease, but it undoubtedly helped materially to secure a more favorable condition of the patient.

It was my intention to record a number of cases in which nuclein solution was employed for the relief of anemia, which would more fully develop its remarkable power over this symptom, but as this paper has already extended far beyond the limits originally mapped out for it, I am compelled to omit them, merely emphasizing my belief in its unsurpassed value in this class of cases.

1411 Walnut Street, Philadelphia.

Analgen.—Dr. A. Jacobi, of New York, publishes a clinical report on this product, covering observations in a number of cases, in the *Medizinische Monatsschrift*; he concludes: "The regular dose was 0.5 gramme; six doses per day. Favorable results were not apparent, only tinnitus aurium was caused in one case. Pain was not much influenced, if at all, etc. . . . . The resultant negative results will not prompt me to undertake further trials." That is rather severe judgment on a product which has received considerable commendation as an analgesic, antipyretic and anti-rheumatic from abroad.

Selection.

THE RELATIONSHIP OF NUCLEIN TO URIC ACID.

Uric acid is a well-known and important product of proteid metabolism in the animal body. Like urea, it is a normal constituent of the urine, and it is found likewise in the blood, liver, spleen and other organs of the body. In various disorders the amount eliminated by the system during the twenty-four hours is greatly increased, and there may be, as in gout, an accumulation of uric acid or of urates in the blood, followed, perhaps, by a deposition of urates in the tissues. The exact origin of uric acid, however, is somewhat uncertain. That it comes primarily from some form of proteid matter is naturally to be presumed, but the exact series of changes by which this particular substance is elaborated and what its direct antecedent is, has never been positively ascertained. The almost invariable presence of uric acid in the spleen, and the frequently observed connection between a rise and fall of uric acid in the urine and variations in the volume, and presumably in the activity, of the spleen have led to the supposition that there may be a close connection between this organ and that particular phase of metabolism which results in the production of uric acid.

In connection with this hypothesis, it is to be remembered that the spleen is apparently the birthplace of large numbers of white blood-corpuscles or leucocytes. Furthermore, knowledge recently accumulated has thrown considerable light upon the composition of these leucocytes and upon the composition of cells in general, and in connection therewith many suggestions present themselves bearing directly upon the production of uric acid in the animal body.

The primary constituents of all animal cells are especially proteid or albuminous bodies belonging to the group of globulins and nucleo-albumins, the latter being especially prominent. These nucleo-albumins are characterized by containing more or less phosphorus, *i. e.*, they are phosphorized albuminous bodies, a fact of considerable importance as showing a possible genetic connection between the cell-nucleus, which is very rich in phosphorus, and the protoplasm or cytoplasm of the cell. The one substance which is especially characteristic of the cell nucleus in all animal cells is nuclein. There are, however, a variety of nucleins, all constructed on the same general type, but differing in the proportion of albuminous matter and nucleic acid, of which they are composed. The nucleic acid is the phosphorus-bearing portion of the molecule, and the proportion of this acid in the nuclein determines in part the the character of the nuclein and the amount of phosphorus it will yield by decomposition. As the main constituent of the cell-nuclei of all animal cells, and of vegetable cells as well, nuclein is widely distributed throughout the animal body. Wherever there are organs and tissues rich in cells, there nuclein and the related nucleo-albumins will be found in abundance. * * * *

Horbaczewski, some years ago, demonstrated that uric acid can be made synthetically from glycocoll and urea. Evidently, then, there is a relationship, both in composition and constitution, between uric acid and those members of the xanthin group of bases which have their origin in the nucleic acid portion of the nuclein molecule. Hence, we might reasonably look upon nuclein with its contained adenin, etc., as a probable antecedent of uric acid as well as of the other xanthin bases. If so, those tissues which are rich in nucleated cells, with their contained nuclein, might be advantageously experimented with in order to test this question. This, Horbaczewski has done for us in an admirable manner, using spleen pulp as the nuclein containing material.* If fresh spleen pulp for example be warmed at 50° C. for about eight hours with eight to then times its weight of water, there is eventually developed a slight putrefactive odor, associated obviously with the presence of some bacteria and some dissociation of the gland tissue. On filtration of the fluid from the undissolved residue, and careful precipitation with lead acetate for removal of the albuminous matters, etc., a clear fluid is obtained which by warming at 40° to 50° C. for a few hours with an equal volume of fresh arterial blood, or with a weak solution of hydrogen peroxide, yields uric acid in the proportion of 2.5 milligrams for every gram of spleen pulp. * * * *

---

* Monatshefte für Chemie. Band 12, s. 221.

The observations of Pohl[1]) and others have taught us that after the ingestion of proteid foods, especially meat, there is a marked increase in the number of leucocytes in the circulating blood. In other words, digestive proteolysis in the stomach and intestine is followed or accompanied by a rapid production of new cells in the lymph spaces surrounding the intestine. These quickly find their way into the circulating blood and are distributed to all parts of the body. Taking the average of Pohl's many results, the increase in the number of nucleated white corpuscles in the blood after the ingestion of animal food amounts to about 78 per cent. This enormous production of new cells in the intestinal walls and lymph spaces of the mesentery, during the height of digestion, means that the proteid foods may be transformed into organized material in the body of the lymph-cell prior to their absorption into the blood, and that these newly formed leucocytes carry to the organs and tissues the nourishment designed for them in the form of living protoplasm. Certainly, after a time, the leucocytes in the blood fall back to their original number, they having presumably been broken down in the blood plasma, or dissolved in the organs and tissues, thus giving up the matter composing their protoplasm for the general nourishment of the body. Among these decomposition or cleavage products, we naturally have the nuclein from the leucocyte nuclei which we know to be the mother substance in the formation of both uric acid and the xanthin bases. In harmony with this hypothesis are many facts familiar to us all. For example, in the blood of the young there is a much larger number of leucocytes than in the blood of adults, and correspondingly a much larger per cent. of the nitrogen excreted is in the form of uric acid in the young than in adults. Again, as is well known, the amount of uric acid eliminated through the urine is closely dependent upon the quality and the quantity of the nutriment. During fasting, the excretion of uric acid is small, while after a liberal diet of proteid food the uric acid excretion is rapidly and greatly increased. Further, Pohl has shown that digestive leucocytosis is pronounced only after the taking of animal foods; vegetable foods apparently have no power of increasing the number of leucocytes in the blood. In harmony with this statement, we have the observation of Bunge,[1]) that a healthy young man fed on a purely animal diet excreted 67.2 grams of urea, and 1.4 grams of uric acid, while on a vegetable diet 20.6 grams of urea were eliminated and 0.25 gram of uric acid. In other words, those conditions of diet that lead to an increased production of leucocytes are the conditions most favorable for increased production of uric acid, all of which lends strength to the theory that under normal circumstances the uric acid of the body owes it origin to a breaking down of the leucocytes of the blood, which in turn owe their origin to the proteids of the animal food ingested; in any event there is, as Horbaczewski has noted, a close parallelism between the content of leucocytes in the blood and the production of uric acid. In this connection, Horbaczewski has communicated some very interesting results obtained with three patients from the clinic of Dr. Pribram, with carcinoma ventriculi With these patients there was no noticeable increase in the number of leucocytes in the blood after the ingestion of animal proteids. Careful feeding experiments, with daily fractional analysis of the urine and examination of the blood, showed that after the taking of proteid food (meat) there was not only no inincrease in the number of leucocytes in the blood but there was even a decrease, and correspondingly a decrease likewise in the amount of uric acid excreted. In other words, we have every reason for believing that there is a close connection between digestive leucocytosis and the production of uric acid; that the latter normally has its origin in the breaking down of the newly formed leucocytes in the organs and tissues of the body, the direct antecedent of the acid being, without doubt, the nuclein from the leucocyte nuclei. * * * *

---

[1]) Archiv für experimentelle Pathol. u. Pharm. Band 25, s. 31. See also Dietetic Gazette. Vol. 9, p. 261.

[1]) Lehrbuch d. Physiol. u. Pathol. Chemie; s. 293.

Practically, all the experiments leading in this direction tend to show that uric acid has its origin in the decomposition of leucocytes, viz., in the nuclein of the cell-nucleus.

It is interesting to note that nuclein itself, especially that prepared from the spleen, administered to a healthy man will give rise to a very marked increase in the number of leucocytes in the blood. A few grams of nuclein will apparently produce as noticeable a condition of leucocytosis as a large amount of proteid food. Associated with this leucocytosis is a very decided swelling of the spleen, and there is every reason for believing that the increase in the number of the leucocytes in the blood after the injection of nuclein is due, as in pilocarpin leucocytosis, to proliferation of the lymphoid elements of all the lymphatic tissues of the body. Horbaczewski has found that merely injecting 0.25 gram of nuclein, in the case of rabbits, will produce marked enlargements of the spleen, with striking karyokinetic changes. Hence, it may be assumed that whenever nuclein is set free in the body, in the decomposition and cleavages continually taking place, leucocytosis may result, provided the nuclein passes into the circulation and is not decomposed immediately after its liberation. Consequently, wherever tissue elements break down through pathological conditions, through injuries, etc., with liberation of the cell-nuclei with their contained nuclein, leucocytosis may result. It is also not improbable that in many pathological conditions, toxines may be formed, which, like pilocarpin, may cause leucocytosis.

Further, the majority of observations recorded tend to show that in those diseases where there is a breaking down of tissue elements there is a pronounced increase in the excretion of uric acid. Thus, in leukemia there is associated with increased production of lymphoid elements an increased excretion of uric acid,* the latter having its origin presumably in the breaking down of these abnormally increased elements. So, too, in fevers there is abundant evidence of increased uric acid elimination, associated with a decomposition of tissue elements. This is especially prominent in pneumonia where increased production of uric acid is quite pronounced, presumably as a concomitant of the decomposition of an exudation exceedingly rich in cell elements, and with a large content of nuclein. In inanition, likewise, as also during conditions of hunger or starvation, there is relatively an increased excretion of uric acid, presumably dependent upon the decomposition of tissue elements. These views being correct, it would also be expected that in many local processes, where organs rich in nuclein-containing cells are undergoing decomposition, there would be marked increase in the amount of uric acid produced. Thus, in cirrhosis of the liver, Baftalowskij † found a very decided increase in the production and excretion of uric acid, which, indeed, has been observed by other investigators.

R. H. Chittenden, Ph. D.

The Dietetic and Hygienic Gazette, Feb., 1894.

---

*Bohland and Schurz, Pflürger's Archiv. Band 47, s. 469; also Stadthagen, Virchow's Archiv. Band 109, s. 390.

† Jahresbericht für Thierchemie. Band 18, s. 128.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. FEBRUARY 15th, 1894. No. 8.

Editorial.

AN EXCITING CAUSE OF DISEASE IN PHILADELPHIA.

The prevalence of diphtheria in the city of Philadelphia during the past two years has been most exasperating, both to the health officials and to the physicians who have come in contact with it. According to the annual report of Medical Inspector Taylor, the number of cases is considerably diminished for the past year. There have been 1902 less than the previous year, with a decrease of 542 deaths, all of which goes to indicate that there has been improvement, either in the means adopted to control the disease, or in the general sanitary condition of the city. The report also conveys the intelligence that the number of scarlet fever cases has diminished from the previous year by 3501, thus showing that the natural tendency to the spread of this disease has also received a check.

That there is still remaining in this city an important exciting cause of disease will be apparent when it is stated that hundreds, probably thousands, of wells still remain in the old sections of the city that are constant disease-breeding places. Some of these wells have been in constant use for fifty years and never once have they been cleaned. The central portion of the city is literally honey-combed with cess-pools, reeking with the foulest of odors which permeate the air, entering the finest residences in the city, and yet some of our people claim that such dangers are less objectionable than the dangers from the sewers.

Doubtless, one cause for the widespread prevalence of diphtheria and typhoid fever has resulted from the repaving of hundreds of old streets, as the soil must be thoroughly saturated with this abominable stench. We might mention also, that the methods pursued in regard to disinfection in cases of diphtheria are rather anomalous, in view of the more recent knowledge concerning the vitality of the germ connected with this disease. The system of quarantine is likewise a farce, as it amounts to absolutely nothing further than the employment of a man to watch the front door of an infected house. The inmates, friends and relatives go in and out at the back door in the pursuit of their regular work, and in this way carry the disease around with them. Notwithstanding that it has been shown repeatedly that it is the merest folly to practice disinfection by means of burning dry sulphur in infected houses, there is practically no other attempt made to rid the premises of the disease. After this work is done in an apparently satisfactory manner, the germs can be collected from the walls and floors, and from the furniture, with but little trouble; and even when the walls and floors are washed with a strong bichloride solution the germs still remain in sufficient number to render the premises dangerous —provided we accept the view that the germ is an etiological factor in the production of diphtheria.

These remarks are not made in a spirit of carping criticism, but rather for the purpose of directing attention to methods which are defective and useless, and by misleading the public, result in great harm, since they are fraught with danger to the entire community. It is to be hoped that the Board of Health will take the subject in hand and thoroughly sift the matter in order to provide the public with proper protection, prompting them to adopt only those measures which are now recognized as efficient in arresting the spread of disease. They have the authority; let them show their hand, and the community will stand by them.

ANTIDOTAL ACTION OF POTASSIUM PERMANGANATE.

It is but a few weeks since the community was electrified by the announcement that a New York doctor had discovered an antidote for morphine, and that as a demonstration he had swallowed in the presence of his class a poisonous dose of this alkaloid, taking immediately a substantial dose of potassium permanganate to counteract its deleterious effects. Now, while there is rather more than a grain of truth in this claim, too much dependence should not be placed upon the antidotal action of this drug. True, Drs. S. Weir Mitchell and Reichert, in their study of the poisonous effects of snake-poison, found that potassium permanganate was the most effective antidote, but it is not a thorough and complete physiological antidote to all organic poisons.

From year to year it has been the practice of teachers of the Philadelphia College of Pharmacy to instruct their students that potassium permanganate was the *best* antidote for all organic poisons, although it should be borne in mind that in order to be effective, the drug must be given before absorption has taken place. In using it for antidoting snake-poison, the portion receiving the poison must be ligatured as soon as poisonous effects become perceptible, when the drug is introduced hypodermatically. The rapid oxidation which takes place when potassium permanganate comes into contact with water would preclude the possibility of its being efficient after the morphine had been thoroughly distributed throughout the system; but inasmuch as morphine makes the round of the circulation and re-enters the stomach, it naturally follows that the use of this substance from time to time by the mouth, in cases of narcotism from morphine, would prove a valuable adjunct to other treatment.

In a personal communication to the writer, Dr. J. W. Fahr, of Milford, N. J., states that he had thoughtlessly swallowed small tablets of strychnine until the whole amounted to about three-fourths of a grain, but as soon as he realized what he had done he immediately took large doses of potassium permanganate, and suffered no inconvenience whatever. There were absolutely no indications of strychninism, and he supposed that he also had discovered an important principle in therapeutics. Nevertheless, this information will be interesting news to thousands of medical practioners throughout the country who still continue to prescribe for patients large doses of medicines containing active poisons, while they at the same time play upon their credulity by recommending them to apply freely such deadly drugs as aconite in the form of liniments. In all such cases it would be well to have a big bottle of potassium permanganate in the house, properly labeled, "Antidote: To be taken after liniments." Such a plan would assist patients in remembering the lineaments of their physician.

GUAIACOL BY INUNCTION.

It must be especially interesting to intelligent physicians of scientific attainments and a practical turn to watch how unfailingly medical theories and medical practice show a tendency to converge and mutually support certain demonstrable truths—we call them scientific facts. It matters not whether theories are right or wrong, or that they rest upon insufficient premises, time and clinical observation will finally correct these divergencies, bringing harmony and completeness out of chaotic imperfections. These remarks apply with special force to the use of guaiacol by inunction in the treatment of typhoid fever, recently brought to the attention of the profession by Professor Da Costa, because the clinical facts all go to support and confirm the scientific basis upon which rests the doctrine of cellular-therapy, so strongly advocated by the writer. And it requires no prophetic vision to foresee the ultimate effects which this line of research will exert in the domain of therapeutics, since every step in advance must be in line with the facts already educed in previous numbers of this journal and elsewhere, relating to the association of diseased conditions with the abnormal function of the cell.

To make a long story short, we can account for the favorable action of guaiacol in typhoid fever through its influence upon leucocytosis. Being applied to the skin in the neighborhood of the affected glands, the guaiacol first reaches the inter-cellular fluids, where it acts as a protoplasmic stimulant—if not used too freely—and upon its entering the general circulation this stimulant effect is continued. Used in this manner, the irritant effect of the drug becomes in fact a stimulant to nuclear activity, and the activity of the leucocytes, or Metschnikoff's phagocytes, is increased, which, *pari passu*, increases the sum total of the antiseptic property of the blood. Thus, the "natural antiseptic" property of the blood becomes inimical not only to bacteria, but also to bacterial products; the disease is conquered, and the patient lives. The probabilities are that the same result would attend the use of guaiacol applied at indifferent points, differing only in degree; but as advodated, there is no circumlocution, and the resulting benefits are more directly apparent. This is a most important discovery, not so much because another remedy has been added to our already extensive armamentarium for the treatment of typhoid fever, but rather on account of the new channel opened in a hitherto unexplored department of therapeutic science. The explanation here offered seems to dove-tail with the researches of Vaughan in relation to the possibilities of introducing a "nuclein-therapy," a subject which is now engaging the attention of the foremost investigators on both sides of the Atlantic, and although no actual reliable data have yet appeared in current literature, there is ample evidence that such will be forthcoming in the near future. A demonstration of the availability of the principles thus far established means substantially a revolution in our ideas as to the most suitable means for overcoming disease. It also foreshadows a complete re-arrangement of our methods of practice in so far as these methods depend upon the mechanical effects of drugs in controlling the symptoms of disordered cell-function. It means that the well-known physiological actions of remedies shall take second instead of first place in modifying defective metabolism.

THRESHING OVER OLD STRAW.

In an elaborate article which appeared in a late issue of our esteemed contemporary, *The Medical News* (Dec. 16, 1893), an editorial writer has been threshing over old straw, straw that was thoroughly flailed by Professor Vaughan months ago until it was absolutely barren. This article details at some length what purports to be "new treatment of typhoid fever," referring to the method which begins and ends with the hypodermatic use of dead bacterial cultures. The idea was first advocated by two Frenchmen, who began their investigations with ordinary pus-corpuscles. They assumed that in the case of inflammatory action, the approach of the leucocytes meant a conservative force or effort of Nature to counteract the disease process, and reasoning from these premises that Nature was sending some curative agent by this means, their object was to capture and bottle it for regular use. In this, however, they were only partially successful, since the product obtained developed but little if any bactericidal value.

Vaughan went thoroughly into this investigation and established the fact that such products contained no antiseptic or curative properties. He assumed, however, that as the white blood-corpuscles were important factors in connection with the development of pus, they might possess some valuable properties provided they were taken while in their normal condition, and from this elaborate study he was rewarded by the discovery of nucleins.

As an indication of the fallacies which are liable to overlap work of this kind, we may mention as a preliminary to the *denouement* that the record credits Fraenkel with the treatment of fifty-seven cases of typhoid fever, and Rumpf with thirty cases. But, listen to this most remarkable report:

> "In his (Rumpf's), first experiments, he used dead cultures of the streptococcus pyogenes, but these having no favorable effect, he next prepared cultures of the bacillus pyocyaneus in thymus-bouillon, just as Fraenkel had done with typhoid-bacilli. The action of this "pyocyaneus-bouillon" on the patients was, on the whole, quite as favorable as that observed in the cases treated by Fraenkel with "typhoid-bouillon." The temperature curve soon assumed a remittent type, the somnolence and delirium gave way, the functions of the skin and kidneys were restored—all without any appreciable embarrassment of the respiration or circulation.
>
> "Fraenkel and Rumpf claim, and they have had ample oppurtunity for observation in the large general hospital at Hamburg, that never in their experience with different methods of treating typhoid fever have they before seen such results as were obtained in these cases. In from six to eight days, the fever for the most part, and all of the severe phenomena of the disease, had disappeared. The convalescence was prompt, and as a rule, pursued an uninterrupted course. In cases in which relapses occurred, these yielded speedily on the renewal of the injections."

Now, looking at this report with our present knowledge concerning the active antiseptic properties contained in the thymus gland, together with the fact that without using this the cultures were practically useless, it is an easy matter to arrive at the conclusion that the efficient factor in modifying the disease was that obtained from *the thymus gland itself, and not from the dead bacterial cultures*, and the question which naturally arises in our mind is, Was it a nuclein?

ARSENITE OF COPPER IN TYPHOID FEVER.

The editor has anxiously watched his exchanges for favorable comments upon the contribution in the December number of the American Therapist by Dr. A. H. Thomas, of Hurley, Wis., entitled, "Arsenite of Copper in Typhoid Fever." Ninety cases of typhoid fever with but a single death, and that from intestinal hemorrhage, is certainly a record of which one might feel proud. Dr. Charles H. Stowell, the brilliant editor of *Food*, has so far been the only one to make note of these most flattering results, and to him the thanks of those so affected are due, because it is a most efficient remedy. Indeed, it is efficacious above hundreds of other remedies, because it is practically free from danger, as the writer has arrived at the conclusion that for the most part the remedies employed in this disease are far more dangerous than the disease itself.

About the only hindrance to the universal employment of copper arsenite in the treatment of typhoid fever and other disorders of the bowels seems to be due to the fact that it is not controlled by copyright or patent and made in Germany. If a tithe of its valuable properties were actually known by the medical profession, and its manufacture a profound secret, there would be a greater demand for it during the summer season than ever attended the advocacy of Koch's so-called lymph, which is now referred to as a premature delivery. In some sections of the country, however, through the influence of parties interested in manufacturing tablets, and through druggists, the employment of arsenite of copper has accomplished wonders. In New York, for example, the writer has learned that Paris-green cocktails are quite popular with those given to tarrying long at the wine. And recently the writer was informed by a gentleman employing quite a number of men during the summer, that for two years past, he had practically incurred no expense for medical attendance, as the arsenite of copper seemed to be a panacea for all summer ailments.

Current Literature.

THE LOCAL TREATMENT OF DIPHTHERIA.

Dr. A. Jacobi, of New York, believed that the local treatment of diphtheria are best studied on external wounds or on diphtheria of the vagina. One should not use powders in the treatment of laryngeal diphtheria, as they were apt to produce nausea. Bad-tasting and nauseating medicines of all kinds should also be avoided. It should be remembered that gargles were effective only as far down as the pillars of the soft palate; therefore most of the gargling was useless. The dangers in diphtheria were, first, from suffocation; second, from heart failure and exhaustion; and, third, from sepsis. Sepsis and a fatal termination usually occured in cases in which the nares were affected. The diphtheritic membrane should be destroyed by local applications of a mixture of equal parts of carbolic acid and glycerin, which was more effective than chlorine water. In general, local applications would be allowed by adults and large children. Smaller children would struggle and become exhausted if applications were attempted. The struggling was a serious matter with small and very sick children; besides, it was possible in such cases, as a rule, only to reach the tonsils with the application, and sepsis did not usually take place through this avenue. It was better with small children to give internally medicines which were easily absorbed, including iron, mercury, chlorine, and iodine. The form of diphtheria which was most dangerous was that which attacked the nares and the naso-pharynx. In some cases the diphtheritic membrane was tough, in others soft and easily macerated. In the latter cases the virus was most readily absorbed. Where it was possible, it was well to apply medicines to the throat with cotton wrapped upon a long probang, and they should be applied as thoroughly as possible to the entire membranous surface. If the nares were affected, the medicine might be poured into the nose with a feeding cup, or a small syringe might be used. The use of an irrigator for the nose was not without danger. Applications should be made with the patient in a recumbent or semi-recumbent posture. Mild applications, including salt water and lime water, would also be found useful in many cases for their cleansing effects, also carbolic acid, creolin, and weak solutions of bichloride of mercury. Papayotin, in a five per cent. solution, or trypsin of similar strength, combined with bicarbonate of sodium, was also useful. For the treatment of adenitis associated with diphtheria, preventive and curative measures should be used. Ice would be effective in some cases. Iodoform, if given by injection, was too painful. If the swelling was extensive, long and deep incisions should be made, and they should be made as early as possible in the history of the disease. In cases in which hemorrhages occurred, suitable astringents should be used, but solutions of iron should never be used to check hemorrhage. The paralyses of diphtheria should be treated by means of friction. The most urgent cases were those in which the muscles of respiration were involved. If electricity was used, one must be careful that the muscles were not over-stimulated.

N. Y. Med. Journal, Feb. 10th, 1894.

THE GENERAL TREATMENT OF DIPHTHERIA.

Dr. E. F. Brush, of Mount Vernon, believes that the object of treatment should be to support the strength of the patient until the dangerous period of the disease is past. He does not believe in any specific treatment. The disease was not due to a single cause. Danger was to be apprehended from the use of the potent drugs which were so highly recommended. Death in some cases of the disease was inevitable, whatever treatment might be adopted. The general indications of each epidemic should be studied. The intestinal tract should be kept open; calomel and suitable enemata should be given, especially when the temperature was above 103°. Tincture of chloride of iron with potassium chlorate was the best medicine which had yet been found for the treatment of the disease. Fluid food should be given, especially buttermilk, whey, oatmeal water, soups, and broths. Alcohol was quickly absorbed and eliminated, and large quantities of it would be tolerated. Turpentine might be given, if for any reason alcohol was objected to; if necessary, alcohol might be given through a stomach-tube.

N. Y. Med. Journal, Feb. 10th, 1894.

DIPHTHERIA.

For the benefit of physicians and suffering children, I send the following prescription, which, so far as I know, has never failed in a single case of diphtheria. The medicine is a dangerous one if given too often or in too large doses. I have been using it for several years, and have seen no bad results, but precaution is the mother of safety.

Here is the prescription:

R.	Mercury biniodide	40 grains.
	Potass. bichromate	40 grains.
	Tinct. belladonna	45 minims.
	Sugar of milk	12 ounces.

Put the bichromate into a clean wedgewood mortar, pulverize it; then add the biniodide and about one-fourth of the sugar; triturate for a few minutes; then add one-half the remainder of the sugar and the belladonna; triturate for fifteen minutes; then add the remainder of the sugar and triturate for thirty minutes.

In the treatment of scarlatina, diphtheria, etc., this powder alone will cure more cases than all the other remedies. The dose is from five to ten grains of the powder, dropped on to the back of the tongue and allowed to slowly dissolve, no fluids being given for some time thereafter. The doses should be three or four hours apart, and the remedy should not be continued too long at one time.

The medicine should be wrapped in dark paper, as light decomposes it, and it is also best to prepare only a small quantity at a time.

The prescription first appeared in the *Eclectic Medical Journal*, of Cincinnati, where it was highly recommended.

BENJAMIN A. PENN, M. D.

The Medical Brief, Feb., 1894.

Note.—The above formula would prove acceptable in the form of triturates, although a smaller dose of the biniodide (now gr. $^{1}/_{25}$) at shorter intervals will produce better effects and is free from danger. In the case of diphtheria gr. $^{1}/_{100}$ mercury biniodide can be given every two hours to a child five years of age, and even much smaller doses are effective. The following is suggested:

R.	Hydrarg. iodid. rubr.	gr. $^{1}/_{100}$.
	Potass. bichrom.	gr. $^{1}/_{50}$.
	Tinct. belladonnæ	min. I.
	Sacch. lact., q. s.	

Misce et ft. Tab. Trit. No. 1.

It is of the utmost importance that the ingredients should be thoroughly triturated, or the medicine must not be given in bulk. The biniodide being insoluble, when this compound is added to water, it is quickly deposited at the bottom of the vessel. In this way, of course, the dangers are reduced to a minimum; but on the other hand, when given in the form of powder, objectionable after-effects are likely to follow.—EDITOR.

THE USE OF TARTAR EMETIC IN DIPHTHERIA.

Dr. H. De V. Pratt, of Elmira, believed that any method of treatment should be subject to modification and change. Diphtheria presented different forms in different epidemics; consequently the treatment must vary from time to time. In the last five years the speaker had treated forty-seven cases with tartar emetic and opium, and only two of the patients had died. He was accustomed to give a thirtieth grain of tartar emetic, with a sufficient quantity of opium, to very young children every hour for twenty-four hours. On the following day the dose was doubled, and this treatment was continued as long as the conditions indicated it. The constitutional effects of the tartar emetic were noticeable within a few hours, but toleration was quickly established, and in his experience no contraindications had been seen. It hastened the progress of the disease and then checked the development of the membrane, no matter where the latter was developed. The constitutional symptoms would improve with the change of the local conditions. The nourishment of the patient was also to be considered; the discharges were to be disinfected; and strict cleanliness was to be insisted upon. There had been no serious sequelæ in any of his cases; hence he must conclude that the treatment had been efficient. It was not an emetic treatment; there was no depression after the first few hours; the drug acted directly upon the poison of the disease.

N. Y. Med. Journal, Feb. 10th, 1894.

GUAIACOL AS AN ANTIPYRETIC.

The *Medical News* for January 27th publishes a portion of a lecture delivered at the Pennsylvania Hospital on January 13th by Dr. J. M. Da Costa, of Philadelphia, entitled Clinical Remarks on the External Use of Guaiacol in reducing High Temperature in Typhoid Fever and other Febrile Diseases. Dr. Da Costa thinks that the action of guaiacol is somewhat inferior to that of the cold bath as regards promptness, but he has observed that the reduction of temperature which it produces is more lasting. He thinks it preferable to the use of cold baths, particularly in cases where proper appliances for administering the baths are wanting and where from the nature of the case it is particularly objectionable to move the patient. The odor of guaiacol is an objection to its use, and this Dr. Da Costa has not yet been able to overcome. Oil of bergamot has been tried, but the odor of guaiacol overcomes that of the bergamot. Cologne water and oil of sassafras also have been tried; but the best result has been obtained with oil of cloves. Guaiacol is to be rubbed upon the skin of the abdomen or thigh with a camel's-hair brush over a space previously washed with soap and water. The largest amount that has been applied at once in Dr. Da Costa's experience is sixty drops, but from the application of fifty drops he has witnessed effects that cause him to advise that rarely should so large a dose be used. Thirty drops he thinks about the average dose.

The guaiacol is to be rubbed in slowly, and the surface to which it is applied need not be uncovered, for the application can be made under the bedclothing, and it is well to cover the surface with a piece of lint and with waxed paper. The dose should be proportionate to the height of the fever; with a temperature of 103° F. it should not exceed twenty minims at the first trial. It is not necessary to rub the guaiacol in, but if friction is not used the effect is neither so rapid nor so complete. The quickest way is to paint the guaiacol on the surface and then rub it in with the hand. Five minutes are enough for the purpose. The sensation, which is not unpleasant, is likened to that produced by the application of menthol. Dr. Da Costa thinks that guaiacol is absorbed by the skin and that it is carried by the circulation to the heat centers, upon which it acts as an antithermic. Apparently its action does not involve the depression that follows the use of antipyrine, phenacetine, and other remedies belonging to the coal-tar products. Moreover, it produces less sweating. In no instance under Dr. Da Costa's observation was there any albumin in the urine or any sign of kidney irritation detected that could be imputed to the use of guaiacol; nevertheless, he advises close examination of the urine in all cases in which the remedy is used.

N. Y. Med. Journal, Feb. 10th, 1894.

Piperazin in Diabetes.—In the *Berliner Klinische Wochenschrift*, of Feb. 5th, 1894, Dr. H. Hildebrandt publishes a very comprehensive, detailed report on his observations of the effect of Piperazin in experimental diabetes. He found that the pure base, even in every small quantity, readily reduced the saccharinating effect of the hydrolytic ferments (especially also those of blood-ferments). His deductions are generally favorable, and he advises the addition of the drug to the therapeutic measures in treating diabetes. He suggests that in prescribing the remedy it will be preferable to neutralize the gastric juices by an advance dose of bicarbonate of sodium, and to give the piperazin a half hour before or after meals.

Book Notices.

THE STANDARD DICTIONARY. Published by Funk & Wagnalls Co., of New York. In one volume, $12.00; in 2 volumes, $14.00. Sold by subscription only.

A hundred and forty years have elapsed since Dr. Johnson made the famous dictionary which is the dividing line between purely literary and philological dictionaries. Gathering conservatism and philological radicalism as it flowed, Johnson's Dictionary gave rise to Walker, Latham and Stornmouth among the older types of English lexicons. In America, Webster and Worcester belong to the weakly philological and the literary dictionaries, the difference between them being that Webster was orthographically radical, etymologically conservative and philologically weak, while Worcester was less American and conservatively literary, but made no philological advance. Through all the subsequent editions the original characteristics of these dictionaries are distinctly present, until they have fallen in their last forms into mere school or academic and popular dictionaries. This has grown out of the pecuniary economies of copyright owners, whose principle of business has been to do as little as was necessary to gain a new lease of copyright life. Meanwhile a great wealth of philological learning has accumulated, which found expression in specialized glossaries of dialects, archaisms, old and middle English, slang and historical forms. Stimulated by the ponderous example of the French Academy and of the Grimm's and German Wörterbuchs, English scholars and publishers were aroused to make use of all this wealth in new and exhaustive dictionaries. The gigantic and long-pondered execution of an exhaustive historical English dictionary, which is now slowly evolving under the editorship of J. A. H. Murray, threatens to be as long in completion as the still uncompleted dictionary of the French Academy after a generation of work. Meanwhile such anticipatory works as the Imperial and Encyclopædic Dictionaries were hurried into popular use. They followed the tenor of the times and were made to be voluminous and cheap, and are philologically lean, while they run to the bulk of from eight to twelve volumes. The famous Century Dictionary began in a project to publish an American Edition of the Imperial,—a project that failed through sundry copyright and publisher's difficulties. The projectors thereupon began *de novo*, with the Imperial for a basis, and issued the largest complete extant English dictionary, rich in philological research, at a cost of $60 to subscribers. It now exists in seven handsome folio volumes, embodying large encyclopædic information, and costs as much as or more than the best of our popular cyclopedias. This is a pioneer type of modern lexicography, and of course it has called out a large amount of criticism and many suggestions of emendation of importance.

Since the vast accumulations of linguistic wealth began to pass into lexicography through these voluminous works, there has arisen the necessity for a better mediation of it to the public than publishers' superficial revisions of books on which the copyright has expired. There has been needed a dictionary within the means of the general public which shall be to the community what Webster and Worcester were to our fathers,—a dictionary abreast of the age and made for the academy, the school-room, the student and the office, as distinguished from heavy and expensive tomes available only to libraries and the opulent.

A notable attempt to take possession of this field is the *Standard Dictionary* published by the Funk & Wagnall's Company, New York, of which the first volume has come to hand. In examining it these prefatory remarks seem to be the simplest and clearest mode of exhibiting the place and aim of this new work. How well does it answer the requirement?

To make a *standard* dictionary in this day must be a great achievement, but it seems to be in the course of successful accomplishment. In the first place, here is a book of 1060 three columned quarto pages, or half of the completed project. Clearly the whole work can be issued in one volume of 2200 pages, and that result is promised for no distant day. Its size and price must at once put it on a popular equality with any other American unabridged and exhaustive dictionary. It is a marvel of condensation to put more than 30,000 more words than the Century Dictionary contains within such compass. This condensation leads us at once to one of the most obvious and characteristic features of the work. Very noticeable are the groupings of words and the presence of tables. A word having found vocabulary place, is defined, beginning with its most usual sense and descending through the rarer significations to obsolete meanings, and after them all comes the work of the etymologist. This system will greatly facilitate references. Quotations are used with considerable freedom, and it is claimed that none of them have been used by a lexicographer before. They are for recent meanings taken from recent literature and scientific or professional writers. So far as our examination goes, this claim is fully sustained, and the old illustrations which have done duty from Dr. Johnson's and Noah Webster's days in all British and American dictionaries have disappeared from the columns of the *Standard*. After the etymologies come the variant and obsolete forms of the word, which, of course, do not need further definition. Then come compounds and phrases, which being hung on the one recurring and generic element or term, are already half defined and require only the addition of the specific modification. There is thus a great saving of repetitious words and often a clear gain in sense, arising from the association of a compound word with the etymological origin of one of its parts. In some instances these groups run to more than a hundred words. From a medical point of view these groups of professional terms are most advantageous. Thus for example under the element *blasto*, there are 41 technical terms nearly all pertaining to biology, and all of them gaining clearness of definition by their grouping. In medical terms this work is exceedingly rich in matter and there is apparently no important thing in Dunglison, Bailey, or Foster, so far as that work has been carried, which may not be found in the *Standard*.

Another form of condensation which appears to be quite a novel feature of lexicographical art is the frequency of tables and analytical treatment of subject. A few only can be noticed as merely indicating what this unique method is. It is scarcely stretching words to include the analysis of physiological and scientific subjects under tables, although this method is pursued so often as apparently to sink into a mere definition round. It is far more, for it opens the way to an extensive series of words which make the work Encyclopedic.

Thus *anthropology* is taken up in the widest theoretical sense through Eighteen Subdivisions stretching from somatology to history, and again on lines of pure inductive processes, embracing somatology, ethnology, ethnography and archæology. The same course is taken with biology history and hundreds of comprehensive terms. But the tables most conspicuous are such as the enumeration of all the chemical elements, with the dates of their discovery, their laboratory origin, their atomic and specific weights, etc., of 500 coins and units of account of all nations for the whole historie period. The colors, as blue, crimson, green, etc., are tabulated through all their commercial forms, as pigments and dyes. A score of like tabulations are under our eye but there is no room to enumerate them. This is more than lexicography, it makes a general reference book. In this feature the *Standard* makes an original and vast advance on the *Century Dictionary*. It is a sort of interlacing web that singularly knits into one unravelling thread the whole vocabulary of the most important topics and the latest classifications of human knowledge.

It remains to say that in literary and phylological interest the scope of the work is from Chaucer, through Spencer and Shakespeare to the local words of Australia, New Zealand, Canada, the Pacific Coast to the colonists among the Kanakas of Oceanica. It is a glossary for all the classics of early English and for the latest English travellers. In orthography it is Websterian, and the reformd spelling of the Philological Society is every where given, but by itself, with a credit to its authority. Yet the more conservative spellings are given with exemplary fidelity, even to retaining the clumsy *U* of the British in such words as honour, favour, etc. Over 200 specialists are named as responsible for the nomenclature in their departments, many of them being residents of England, of world wide fame, as Huxley, Max Müller, H. M. Stanley, and Ethé of Oxford. Dr. F. P. Foster, of New York, has had charge of the professional words used in medical science and art. The volume at hand is in appearance an elegant volume, singularly clear in impression and well displayed. It is profusely illustrated with wood-cuts expressly made for it, and has a number of full paged plates in chromotype which do great credit to the special printers in color. The plates on birds, gems and orders of Decoration are almost fine enough to seem to be done by hand. Without a question the work will be very widely received as the amplest, handsomest, cheapest and most variedly useful accessible to the public. It must have been a costly and laborious undertaking, but the result is a memorable achievement in both the lexicographers' and the publishers' arts.

George Keil, 1715 Willington street, Philadelphia, announces the early publication (third edition), of the "Medical and Dental Register Directory and Intelligencer," for the States of Pennsylvania, New York, New Jersey, Maryland and Delaware. It will present not only a complete list of all medical and dental practitioners in the States named, with place and date of graduation, but also lists of professional educational institutions, hospitals, societies, etc., etc., and will be of much practical value to all members of these professions.

The U. S. Dispensatory (J. B. Lippincott Co., Philadelphia) is now rapidly reaching completion, and will be issued by March 1st. From advance sheets it may be noted that the work has been thoroughly revised, and that it will be complete and satisfactory in every detail. According to the publishers the advance orders already amount to more than the contemplated first edition, 10,000 copies, and a further edition will have to be issued at once. This book, under the control of one of the foremost therapeutic authorities of the day—Prof. H. C. Wood, must be an indispensable work of reference for every practitioner.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, MARCH 15th, 1894. No. 9.

Original Articles.

SPARTEINE SULPHATE.

By JOHN E. BACON, M. D.

The tops of the Scoparius cystisus, the broom plant, native of Europe, are official and used in medicine as a hydragogue diuretics, being exhibited for this purpose most frequently in decoction, and used in general dropsies. It contains two principles, scoparin, a crystallizable neutral principle, the therapeutic properties of which are not yet fully determined; and a liquid alkaloid, sparteine, which is colorless, soluble in alcohol, ether and chloroform, having a very bitter taste and penetrating odor. It has basic qualities and unites with sulphuric acid to form sparteine sulphate, a crystallizable salt, of pale, greenish color and bitter taste. It is very soluble in water, and for physiological investigation is superior to the alkaloid, being better borne by the stomach and accurately representing the virtues of the drug.

I have experimented for some time with the sulphate, and have arrived at some conclusions which are here presented without detail of tedious laboratory work.

Sparteine sulphate is a spinal and cerebral depressant, but has less influence on the motor and sensory nerve-trunks than formerly supposed. If the blood-vessels of one leg of a dog be tied and a full dose given hypodermatically, faradization of both sciatic nerves will produce equal reaction; also applied in strength of 4 per cent. solution to an isolated muscle, the faradic current will produce quite as powerful a response as a similar muscle not so treated, but the reaction will not be so rapid. Under a lethal dose the reflexes are gradually diminished until lost. A severe convulsion usually occurs just before death. Death is due to paralysis of the respiration, as the heart continues to beat some seconds after respiration has ceased. The convulsions are probably cerebral. Animals so poisoned are always quiet for some two hours preceding death. I have noticed a decided increase of saliva in most instances, but have not noted any evidence of pronounced action of the kidneys.

Applied directly to the heart of a frog *in situ*, it induces decided slowing of its action with a firmer contraction. And allowing the heart to almost cease beating, a drop of the 4 per cent. solution placed over it will cause it to continue for some time as well as strengthen the contraction. The heart is finally arrested in systole. Given to the dog hypodermatically, the heart is first quickened and then slowed. The contractions are stronger and the pulse feels firmer. It is affirmed that the blood-pressure is not increased, but as to this I am not able to say; but that the pulse-wave is larger, fuller and higher there is no doubt. The primary acceleration is probably due to paralysis of the pneumogastric centre or of the intrinsic inhibitory ganglia, or both, and the subsequent slowing is probably due to direct action on the heart-muscle.

I have used sparteine clinically in a number of cases of ordinary mitral disease with satisfaction; also in a few cases of palpitation and irregular heart from overuse of tobacco. It acts well in the latter cases, rendering the contractions firmer and regular. I have used it in two extraordinary cases, one of which was reported last year (AMERICAN THERAPIST, Oct. 1893,) and the other is appended.

Mamie O'C., aged 11 years; Irish, fairly well nourished.

Family History: Father's mother had chronic rheumatism; father had always been healthy—no chronic disease; mother's parents healthy. Patient never had been seriously ill; has had slight rheumatic pains, but never confined to bed. One brother, one sister, younger, both in good health.

Personal History: Patient was a very strong, healthy child until seven years of age, when she contracted malaria, while living in the State of Oregon; was sick some months and recovered. At nine she was attacked with inflammatory rheumatism; was confined to bed six weeks—did not fully recover in ten weeks—has been weak and ill nourished ever since. There was endocarditis during this illness, which left the patient with mitral lesion, and compensatory hypertrophy of the left heart has since developed. She was not ill again until the present attack.

History of Present Attack: Patient was taken on Friday, December 23rd, 1893, with stiffness and pain in knees and ankles. I saw her on Saturday; found some swelling and redness of knees and ankles; very tender; pain on least motion. Temperature 103.5, pulse 120, tongue heavily loaded with whitish fur; bowels had moved the day before. There was a very distinct mitral murmur which had existed since former attack. I ordered:

℞. Potass. Acetas.............. ℥ i;
Spts. Ætheris Nit.........fl. ℥ ss;
Ext. Hyosciam.......... min. xxxii;
Aquæ dest. ....q. s. ad fl. ℥ iv.
M. Sig.: Teaspoonful in water every 3 hours.

Turpentine stupes were applied to the affected joints. Sunday the patient was better; temperature at noon 101°, pulse 100. Monday there was no pain in the affected joints, but motion was painful, and they were yet tender. Temperature had gone up to 102.5°, pulse 120. She could not lie down and was supported in a sitting posture by pillows. Careful examination of the chest revealed a rough blowing murmur all over the left chest; no spots of maximum intensity. There was precordial distress and beginning dyspnea with great suffering. At this point I had an excellent physician of large experience called in consultation. We agreed on the diagnosis, viz.: Acute endocarditis, following rheumatism, and prescribed as follows:

℞. Pulv. opii .... gr. iii;
Bismuth. salicylas........ gr. xxiv;
M. et div. in chart. No. xii.
Sig.: One powder every four hours.

We also gave two doses per day of the potassium mixture, and enveloped the chest in a jacket of salicylated cotton. The next day the temperature rose to 104°, pulse 136, remaining so for two days. The temperature then fell to 103° where it remained until Sunday. On Thursday the pulse-rate rose to 140 and became distinctly intermittent and weak. We added to the treatment:

℞. Quininae salicylas......... gr. xxiv;
Ext. digitalis.............. gr. iv.
M. et div. in chart. No. xii.
Sig.: One powder every four hours.

The pulse-rate continued for three days at 130 to 140, getting perceptibly weaker and more irregular. The capsules of quinine and digitalis were given Saturday and Saturday night every two hours, also on Saturday night a dose of min. xx of tincture digitalis, with no apparent effect. The dyspnea increased, and the pulse became progressively weaker, and by noon Sunday was intermitting every third beat with frequent intermissions of two and even three beats. At two o'clock I gave sparteine sulphate gr. $^1/_4$ in water, and a dose of gr. $^1/_4$ every hour for four doses. Within the hour after the first dose dyspnea was somewhat lessened. At three o'clock the pulse was 140, and at six P. M. it was 110; breathing easier, with free perspiration and temperature 102.5°. Doses of gr. $^1/_4$ were given during the night, three hours apart, and at 12 P. M. a dose of morphine sulph. gr. $^1/_8$. The patient passed a fairly easy night and appeared decidedly better in the morning. I now discontinued all the previous treatment, and put her upon the sparteine sulphate in gr. $^1/_4$ doses every four hours, with morphine sulphate gr. $^1/_8$ every six hours; she gradually improved, the temperature falling slowly to normal, and the pulse perfectly regular. After second day the pulse came down to ninety per minute, with marked increase in strength; the appetite began to improve, and she took beef-tea, eggs and milk freely. She was allowed to get up in two weeks, and is now about, gaining steadily. The treatment has been discontinued, and she is now on a tonic, viz.:

℞. Strych. sulphas............. gr. i;
Elix. lactated pepsin........
cum Tr. ferri chlor..........fl. ℥ viii;
M. Sig.: Teaspoonful after each meal.

The condition of the heart, at present, appears to be much the same as it was before the present illness; a well defined mitral murmur with hypertrophy of the left side. There is a little roughening at the aortic valve, but no distinct regurgitation; the subsidence of the inflammatory process, while slow, is remarkable, as there has been little permanent change effected.

There is unquestionably an important field of usefulness for this drug; and in my hands it has proved superior to atropine, strychnine, or digitalis, in conditions where a prompt powerful cardiac stimulant is indicated.

Sumner, Wash.

QUININE IN PUERPERAL PERITONITIS.

By E. Macfarlan, M.D.

The literature of quinine in therapy has not yet been fully written, at least so far as it has come within the range of my reading. I take pleasure therefore in submitting to the profession the report of a case occurring in practice several years ago, which I diagnosed as puerperal peritonitis. The following history and therapy of thec ase are from notes taken during my attendance:

August 18th. Was called to Mrs. W., age 36. She had had a successful confinement about two weeks previous, but imprudently left her bed too soon to attend to the domestic duties, and in consequence in a few days was compelled to return, having been attacked with abdominal pains, and dysenteric discharges. On examination I found in addition to pain of abdomen, there was great tenderness on pressure, and that even the weight of the bed-clothes was distressing. The discharges from the bowels I found were frequent, and composed of blood and mucus; skin hot and dry, pulse 140. My diagnosis was puerperal peritonitis complicated with dysenteric discharges. I immediately prescribed Pulv. doveri and hydrg. c. creta.

August 19. Found patient slightly improved, discharges being less frequent. Continued the powders.

August 20. Abdominal pain and tenderness not in the least diminished. It had been my purpose for some time, having giving considerable attention to the therapy of quinine, that I would make a therapeutic test in the first case of puerperal peritonitis that should come under my care, and after waiting, the opportunity had come, and I embraced the chance offered to make the test. I gave a grain of quinine every two hours.

August 21. Found patient much better in every respect; pulse 108, skin cool and moist; pain and tenderness of abdomen greatly diminished; dysenteric discharges had almost ceased. Quinine continued.

August 22. Patient greatly improved. Her condition was obviously a victory in the therapy of quinine. Pulse below 100, soft and regular; abdominal pain absent; tenderness very slight even on firm pressure. Alvine discharges nearly natural. From this date the patient made rapid convalescence.

314 W. 126th St., New York.

THE DISSEMINATION OF DIPHTHERIA.

By W. W. Myers, A. M., M. D.

In discussing this subject, several questions come up for consideration.

First: How do the bacteria enter the body?

Second: In what manner are they transmitted from one individual to another?

Third: Do they require a special condition of the mucous membranes before they can take root on them?

I maintain that the poison is not transferred from person to person, but that it must first acquire a kind of maturity in the atmosphere, and thus be enabled to assume an infectious property. It then enters the body with the air, and is taken up by the respiratory organs. The bacilli having been once received, they settle themselves and begin their pernicious activity They are surrounded by a copious accumulation of cells, and do not, as a rule, advance as far as the chief mass of the membranous accumulation which is characterized rather as a layer of exudation containing few if any cells and bacteria.

I account for this by the circumstance that it requires, as a rule, certain preparatory factors, to enable this bacterium to make its attacks. The healthy tissues and coverings of the body resist the micro-organisms; only when the motor powers of resistance are weakened or neutralized will the foreign invaders take a firm footing and begin their work. The better the medium agrees with them, the more rapidly will they develop and the greater will their virulence become.

We know that the action of the pathogenic bacteria is chiefly to be explained by their producing specific, extremely poisonous substances, which seriously injure the organism, influencing it in a definite manner, and thereby causing definite, wide-spread, prevalent forms of disease. Just as the small portion of poison injected by the sting of a bee, or the tooth of a serpent, suffices to cause local and constitutional derangements of considerable extent, so also the bacteria, by means of their toxine, are able to affect parts with which they come into no direct communication. In this manner we can explain the paralysis, etc., of diphtheria. And yet the most careful search only discovers a very limited number of micro-organisms, or finds them limited to one particular portion of the body;—but at the same time they generate a soluble substance which spreads from their locality through the body, and thus affects even remote parts. The diphtheria bacilli never appear *alone*, but are always accompanied by streptococci, which follow and support them in their attack on the tissues.

Under certain circumstances the micro-organisms of diphtheria lose their poisonous character to a greater or less extent, without showing any change in their appearance, growth, etc. This diminution of virulence is the result of two essentially different causes:—

First: A gradual diminution of infectious power in the bacteria, by vegetating them on artificial food-media.

Second: The exposure of the micro-organisms to the influence of high temperature.

The virulence of these micro-organisms may also, under natural conditions, be sometimes greater or sometimes less.

We see this exemplified in the higher plants. For instance, the fox-glove from a given locality will yield in one year a very potent poison; in the next year a much weaker one.

Now, if diphtheria bacilli infect a human being, and pass over from individual to individual, will not its character depend on the original qualities of the disease-exciting micro-organisms?

I have applied the diphtheritic bacilli to the healthy mucous membrane, and no results whatever were produced. The mucous membranes of sixty healthy children were examined, and the bacteria was not found in one.

There is a *peculiar* specific action or susceptibility of the mucous membrane which favors the growth of this bacteria. It is excited by them; the local manifestations are the signs of the place of entrance and the constitutional disturbances the evidence of the general distribution of the poison. That the disease occurs mostly in children, I explain by the fact that the mucous membrane is in a softer condition, the tonsils are more protuberant, and the lymphatics larger and more numerous, with a greater communicability between them and the general system. The methods of transmission are, bad drainage, polluted water-supply, milk of diseased cows, etc., and we have clearly demonstrated that the disease does occur among domesticated animals. The disease germs by enormous multiplication act mechanically through their bulk, obstructing the capillary circulation, and by pressure on solid tissues cause their gradual destruction.

I can with good reason say that the diphtheria bacillus is not simply *one* cause of the disease, but its *sole* cause, and that without this bacillus you would have *no* diphtheria.

We can control this disease in a great measure by inoculation.

If we remove the micro-organisms by filtration or heat their excretions (products) will remain; but these do not multiply in the person inoculated, but are diluted by mixture with the blood and tissue-juices. Their effects are thus diminished, and by this means we are able to produce immunity. I mean by this that in the fermentation of lactic and butyric acids and urine, and in the putrefying decomposition of the contents of the intestines, substances arise which put a stop to the further development of the micro-organisms.

As regards the *disinfection.* We demand from a truly disinfecting material that it should once for all destroy *every* trace of life in the micro-organism. But we cannot in every instance accomplish this. The different species of bacteria are by no means all alike as regards the tenacious vitality of their spores. Some are known which yield to slight attacks, and others that can be destroyed only with the greatest difficulty. The *only* means which can fulfil the requirements is heat. The spores themselves cannot resist the action of high temperature. Steam at 110° C. will effectually destroy them in half an hour.

The peculiar efficacy of steam, the undoubted superiority of wet over dry heat is a very striking circumstance. The tough covering of the spore, the very touchstone of all disinfecting processes, swells and softens on coming into contact with the moisture, and thus becomes permeable. No other spore offers the same amount of resistance to our destructive efforts as that of the diphtheritic.

I placed a number of the diphtheritic spores upon silk threads and dried them and then exposed them to sulphur fumigation for four hours, and then placed them on a fresh culture medium. They caused a development of bacteria. Another lot of threads dried in same way, were exposed to moist heat 110° C. for less then an hour, and the same then placed in culture. They caused *no* development.

1529 S. Broad St., Philadelphia.

*REPORT OF A CASE OF TWO SEPARATE AND DISTINCT UTERI, CENTRALLY SITUATED AND NOT CONNECTED.**

By Hannah T. Croasdale, M. D.

The patient, aged sixty-three years, mother of three children, was admitted to the Woman's Hospital for treatment for an abdominal tumor.

Twenty years before, she noticed some

---

* Read before the Philadelphia County Medical Society, January 24th, 1894.

enlargement of the abdomen, and in five years it reached, she thought, its present dimensions. No discomfort was felt (except from the size) until recently, when she experienced pain and pressure symptoms, and the bladder and rectum became very irritable.

The menopause occurred at fifty, and at that time the woman was confined to bed for several weeks, but there was no especial reason given for this, or she forgot just why she was in bed for that length of time.

Her condition on admission was not very good, although no definite trouble could be found except a systolic heart-murmur. Lungs and kidneys were in good condition.

Pelvic examination externally showed a regular enlargement of the abdomen, and there was percussion-dulness from symphysis pubis to umbilicus, and almost from crest to crest of the ilia, with a small area of tympany on the left side. The measurements, as noted, are as follows:

From umbilicus to ensiform cartilage, 8½ inches.

From umbilicus to pubic symphysis, 12 inches.

From umbilicus to right anterior superior spinous process of the ilium, 10½ in.

From umbilicus to left anterior superior spinous process of the ilium, 10½ inches.

On making digital examination *per vaginum* the cervix uteri seemed small, apparently having undergone senile atrophy, and it was pushed backward and high in the pelvis, the whole uterus being pushed backward. I thought the fundus looked forward, but the uterine sound did not pass readily, hence its use was not persisted in.

What seemed to be a fluctuating tumor was appreciated *per vaginum* to the right of the uterus and above the brim of the pelvis, and a small, tender mass was felt in the right parametrium. The patient complained of pain and tenderness when touched, especially on the right side.

Diagnosis Fibro-cystic tumor of, probably, the uterus.

After the usual preparation the patient was etherized and the abdominal cavity opened. On opening the peritoneal cavity the omentum was found to be greatly thickened and congested and extensively attached to the tumor beneath it and to the pelvic walls. It was necessary to ligate and cut in many places, and upon pushing the omentum aside the tumor looked pale and felt and looked like a fluctuating mass. A trocar and canula being used, I was suprised that no fluid flowed through the canula.

The incision was now extended in the abdominal wall upward sufficiently to admit of the withdrawal of the mass entire.

A small nodular mass attached to the lower part of the tumor, having the shape and size of the uterus and being furnished with what seemed to be the uterine appendages, was drawn out of the lower end of the wound and was found to be attached by a small cord-like pedicle to the pelvic brim, a little below the crest of the left ilium.

Another body, to all appearances a uterus with its appendages, was found in the pelvic cavity and fixed by the usual attachments, but had been crowded into Douglas' pouch.

The slender pedicle, not larger than a pencil, which tethered the smaller mass to the pelvic wall was ligated and cut.

The tumor being now freed from its attachments, which were omental entirely, was lifted from its bed. This growth must have derived most, if not all of its nourishment from the establishment of the circulation through the omentum, for it had almost severed its attachment from other structures, and the omental vessels were enormously enlarged.

The abdominal cavity was cleansed and the opening closed with silkworm sutures, the dressings applied, and the patient was put to bed. Reaction was prompt and good. The temperature for the first four days ranged from 99° F. to 100.4° F. It then rose, and on the sixth day reached 102.6° F., and on the ninth day 105.4° F., when she died of sepsis.

The autopsy showed purulent infiltration at various points in the pelvic cavity. There was also found at autopsy a uterus and appendages in a healthy condition and in the proper position.

Sections from this little body, which hung from the large tumor, were sent to two pathologists. One reported the specimen as being that of the structure of a fibro-myoma. The other pronounced it uterine tissue, and some structure resembling the endometrium.

If this is a separate and distinct uterus, and I think it is, it is an unusual case, a unique case.

We know that bodies which are not properly situated are not well organized, and take on disease very readily. This second uterus had developed from its *cervix* a fibro-myoma. As it grew too large for the pelvic cavity and rose above the brim, the little organ was inverted and so hung suspended from it.

It measures from the internal os to the fundus one and one-quarter inches. The length and size of the cervical portion is exaggerated, evidently from the tension upon it, but as it was cut open in the fresh state it showed quite distinctly the arbor vitæ arrangement of the mucous membrane lining the canal, and the lips and cervical canal were quite natural in appearance. The os internum on the left side admits the passage of a small probe, which passes a little distance along the Fallopian tube. On the opposite side the opening would not admit of the passage of the probe. There are two small ovaries which, on being cut open, showed on microscopic inspection ovarian tissue. No microscopic examination of this tissue has been made. In the cervical canal, just below the internal os, is a small calcareous deposit.

The didelphic uterus we have seen, and these cases are actually two uteri, separated as far as the cervix and including it, and not two bodies more or less divergent, as in the case of the uterus bicornis. Ollivier's specimen of a uterus didelphys, and divided vagina with a distinct cervix uteri looking each into its own vagina, was taken from a woman who had been pregnant five times. Each segment presented the appearance of a complete uterus, seeming to be two unicorn uteri equally developed and opposed without fusion. It used to be thought that this malformation occurred only in non-viable embryos with deformities of other organs. It has been seen with ectropian of the bladder, with imperforate anus, and other malformations. But an entire organ, far removed from one in the usual location, I have not seen mentioned.

Another specimen is this little body which I at first thought was a lithopedion, but, seeing Bland Sutton's note on calcified corpora lutea, find it to correspond very closely with the description of two specimens which had been sent to him at about the same time. He considered them very rare pathological specimens. Dr. Voelker secured one from an ovary of a woman who died of mammary cancer very widely disseminated, and he supposed the two little nodules in the ovary to be secondary deposits; but cutting into them found them to be concretions. One was encysted and had outwardly the appearance of a mulberry calculus of the bladder, the other was imbedded in the ovarian tissue and was of irregular shape.

When this specimen was fresh it was of a bright-yellow color, very characteristic of a recent corpus luteum. It cut as would wax, perhaps of firmer consistence.

Those specimens which Bland Sutton describes consisted of dense tissue impregnated with lime salts. Mr. W. A. Meredith speaks of examining a patient and distinctly feeling the hard body through the vagina, and it gave rise to the impression that the swelling might be the sac of an ectopic gestation containing fragments of bone.

Dr. Coe, of New York, recently described a similar body under the impression that it was a bony nodule.

1525 Walnut St., Philadelphia.

*A NEW METHOD OF EXAMINING THE KIDNEY, ESPECIALLY FOR STONE.**

By Charles P. Noble, M.D.,
Surgeon-in-Charge of the Kensington Hospital for Women, Philadelphia.

I desire to report a short history of the following case, together with an exploratory operation which I performed to enable me to examine the kidney, including the pelvis of the kidney and perhaps one inch of the ureter.

Mrs. T. S., aged thirty-seven years, mother of three children, enjoyed good health until six years ago. Since that time she has been more or less an invalid, and for the past six months she has been absolutely an invalid, unable to attend to her duties. The prominent points in the history are that she has had three well-marked attacks of hematuria accompanied by violent renal colic (so-called); and that, at least twice, she has passed good-sized stones, the last one coming from the left kidney. In addition to this history of violent seizures of renal colic, she has suffered frequently with milder attacks of paroxysmal pain referred to the region of the right groin, the pain being, perhaps, most acute just above the right trochanter major. Recently these attacks have been of daily occurrence, and have been brought on when she was on her feet. She is usually, but not always, comfortable when in bed, but shortly after any attempts at walking the pains come on. The sexual organs are normal, with the exception of a trifling tear in the perineum. The urine has been examined many times and has a very uniform composition. Its specific gravity has varied between 1020, 1013, and 1018; it is acid, and contains pus, bladder epithelium, and ureteral epithelium, but none from the pelvis of the kidney. The urine from each kidney has been examined separately—the urine being obtained by means of the ureteral catheter. Examined in this way it has been found that the urine from each kidney is much the same, the pathological elements it contains being somewhat more marked on the right side. This difference, however, was distinctly marked with reference to the two sides. The urine from the left kidney has always flowed through the ureteral catheter freely and regularly; that from the right kidney has not done so. Upon two occasions the ureteral catheter remained in position upward of twenty minutes, and not more than one or two drops of urine flowed out. Upon another occasion, after waiting thirty minutes with the same result, suddenly one hundred and twenty minims poured out.

Taking all the facts of the case into consideration the conclusion seemed fair that there was a stone in the right ureter, and that probably this was in the pelvis of the right kidney. Several attempts were made, both by Dr. Howard A. Kelly and myself, to pass a ureteral sound along the ureter toward the kidney. It was not possible to make the sound reach above the brim of the pelvis. It was therefore proposed that an incision be made in the loin for the purpose of examining the kidney and the upper portion of the ureter from above.

My experience in performing nephrorrhaphy for movable kidney after the technique of Dr. Edebohls, has taught me the facility with which *a movable kidney* can be drawn out through an incision in the loin. So far as I know, no one has ever treated a non-movable kidney in this way. It occurred to me that this might be feasible, and that at all events an attempt judiciously made could hardly be a source of danger.

Accordingly on December 12th, I made the usual incision in the loin down to and through the peri-renal fat, exposing the lower end of the kidney. With the index finger the kidney was then separated from its connective-tissue attachments and gradually drawn down into and out through the wound, so that it was entirely outside. It was now a very simple matter to explore the kidney by thumb-and-finger pressure, and to make certain that it was in a normal condition. It was equally easy to examine the pelvis of the kidney and to determine that this contained no stone. Perhaps one inch of the ureter also was within reach.

---

* Read before the Philadelphia County Medical Society, January 24, 1894.

As nothing abnormal could be felt, the kidney was replaced within the abdomen and the incision was sutured in the usual way—buried silkworm-gut sutures being placed in the muscular layer, and superficial silkworm-gut sutures in the skin. No unfavorable reaction followed this operation, and so far as the operation itself was concerned the patient made an uninterrupted recovery. Unfortunately the operation has produced no effect whatever on the symptoms, which are the same now as before it was done.

I report the case simply to bring before you this method of examining the kidney. From my experience in this case and in cases of movable kidney, I believe it will be a simple and safe matter in the hands of a skillful surgeon, who has had some experience in kidney work, to remove through an incision in the loin all non-suppurating kidneys having approximately the normal size, for the purpose of a careful examination. The procedure is certainly not one of much gravity, and when done under the conditions laid down should have no mortality. Tentatively I would recommend the adoption of this method of exploring the kidney whenever the symptoms point to the presence of stone in the kidney or its pelvis, and when these symptoms are of sufficient gravity to invalid the patient. I feel confident that as compared with the ordinary method of exploring the kidney through the depths of the incision in the loin, the kidney itself being largely or wholly above the level of the ribs, and imperfectly palpated because of its movability, or examined by means of a puncture with an exploring needle, that there can be no question of the superiority of the method proposed and herewith reported.

Upon theoretical grounds this procedure would not be applicable in cases of abscess of the kidney. Under these conditions, supposedly the kidney would be fixed and not easily separated from its connective-tissue bed. Moreover, it would be enlarged, and in addition to this there would be the risk of rupturing the pus sac, perhaps inadvertently into the peritoneal cavity.

2134 Hancock St., Philadelphia.

LIGATION OF THE COMMON AND EXTERNAL CAROTID ARTERIES AND THE JUGULAR VEIN, FOR ARTERIO-VENOUS ANEURISM OF THE INTERNAL CAROTID AND JUGULAR; WITH DIVISION OF THE OPTIC NERVE ON THE OPPOSITE SIDE, THE RESULT OF A GUN-SHOT WOUND.[*]

By W. W. Keen, M.D.,
Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College.

Mr. St. John, a Frenchman, about twenty-five years of age, was first seen at the Presbyterian Hospital in Chicago, August 9th, 1893, in consultation with Drs. D. W. Graham and N. Senn. Unfortunately, in consequence of change of residence and absence from the city, the history is imperfect.

About three years before I saw him he had been shot, the ball entering just below the tip of the left mastoid. He was unconscious for a brief time, but when he recovered, either the same day or the next morning, he discovered that his right eye was absolutely blind. In addition to this, his right arm was paralyzed, but whether immediately after the accident or at a somewhat later period was not ascertained. When I saw him, the right arm was the subject of contractures, the result of the old monoplegia. The leg and face were not affected. The aneurismal bruit and thrill were very marked, and could be felt down the left side of the head and neck. There was but little external swelling. The man sought relief on account of the noise produced by the aneurism, which made it impossible for him to do any work.

---

[*] Read before the Philadelphia Academy of Surgery, February 5, 1894.

Operation, August 15, 1893, by the kind request of Dr. Graham. The carotid was laid bare by the usual incision over the anterior border of the sterno-cleido-mastoid, the middle of the incision corresponding to the upper border of the thyroid cartilage. Considerable difficulty was found, even at this stage, in consequence of the inflammatory adhesions resulting from the gunshot wound of three years before, and also from the fact that the vessels lay nearly under the middle of the sterno-cleido instead of under its anterior border. My intention had been, first, if the adhesions (the presence of which I had anticipated) would allow me to reach the internal carotid, that I should tie that and the jugular just above the bifurcation of the carotid; but if the adhesions prevented this, I determined to tie the common carotid and the external, the latter being tied so as to prevent the re-establishment of the current by the anastomotic circulation from the other side. Even the ligation of the external carotid above the bifurcation was quite difficult by reason of the adhesions. It was done just at a point where the first branch was given off, and the ligature was made to include both the external carotid and its branch in one loop. The jugular vein was tied at a point half an inch below the level of the ligature around the common carotid, in order that the necessary injury to the tissues should not be at the same level. The veins were very full, giving thus an additional evidence that the diagnosis of arterio-venous aneurism was correct.

Dr. Graham has kindly written me under date of October 2nd, as follows: "The wound healed practically by primary union. One angle was a litttle slow in closing but there was no purulent discharge at any time. The morning after the operation ptosis and immobility of the left eyeball were discovered, although he could turn the globe outward somewhat, and slightly upward. The pupil was not affected, but responded to light. There were no mental disturbances or paralysis. In two or three weeks improvement began in the eye, and when he left the hospital three weeks ago he could keep the lid up nearly in a natural position and could move the eyeball in every direction, promising complete restoration from the paralysis. He was to report to us occasionally, but I have failed to see him since then."

Remarks.—I regret very much the imperfect history of the case, but the circumstances made it impossible to get any more complete history. For the same reason no examinations of the eye-grounds were made, either before or since the operation. Fortunately, the absence of a post-mortem prevents our ascertaining absolutely the pathology of the case. The ball after traversing the blood-vessels entered the skull at its base, and without doubt cut the right optic nerve between the eye-ball and the chiasm. The paralysis of the right arm was due of course to the involvement of the left motor cortex, or fibres proceeding from it. Whether the ball in entering the skull was split into two pieces, one of which injured the left cortex in the arm area and the other the right optic nerve, or whether the paralysis of the arm was due to an embolus trom the arterio-venous aneurism, can only be speculated on. None of the ball was ever found. What the final result as to the aneurism will be has not yet been ascertained.

1729 Chestnut St., Philadelphia.

Tuberculin as a Diagnostic Agent.—Koch's tuberculin is now admited by scientists to be a valuable diagnostic agent for the determination of tuberculosis in cows, but no records have been made so far, to show that these animals are free from the disease after inoculation.

CATALEPSY: WITH REPORT OF A CASE.

By JOHN AULDE, M.D.

The following report of a case of catalepsy, in which there is no doubt of an hysterical element, will prove interesting and suggestive in connection with the extract from the article upon the use of nitroglycerin in hystero-epilepsy, reproduced in another department of this number.

Mrs. H., is past fifty years, residing in one of the Southern states, and until within the past six years has enjoyed excellent health. In the autumn of 1889, she first consulted me by letter for chronic rheumatism with acute exacerbations. I have never seen her, but she wrote me very fully in regard to the severity of the paroxysms, which, by the way, were promptly relived by drop doses of rhus made from the green plant. The following letter, dated last December, will more fully describe the condition of the patient than would be possible, were I to attempt to rearrange the report from the patient.

* * * * Your last letter to me, dated April 10, 1893, has been in my desk nearly a year now. I have read it many times, and often wanted to answer it, but was always deterred by your closing sentence—"Don't write to me again until you have worn connecting glasses and given them a good trial.

Two pairs were made to order for me, one for reading, and one for general use. I commenced wearing them in July, and wore them through the summer and early fall. I derived no benefit, but on the contrary, they irritated my eyes, and often caused them to hurt me.

We have thus for always supposed my peculiar attacks to be epilepsy; relying on the diagnosis of Dr. W., who was a young physician just from the ——— College, and who had probably never seen a case of epilepsy. Dr. M., of S. C., who has known me from childhood, doubted it. My uncle, Dr. D., a graduate of the "Jefferson," and who died last July, also doubted it.

Well, the last of November, I had an attack one morning, as Dr. B., a very old physician of Kentucky, was passing. He was called in and saw me during the whole attack, and pronounced it catalepsy. The same afternoon he called and had a long talk with me, and explained to me the difference between epilepsy and catalepsy. He told me he was 78 years of age, and that in his long practice of more than fifty years, he had had hundreds of cases of epilepsy, but not one, even in its mildest type, that did not show some foam on the lips, some slight convulsive movement. He said, during my attack, he extended one of my arms at right angles with my body, and it remained so; he extended the other arm, and it remained so; he turned my head around, and it remained as he placed it. He took one hand and told me to come and lie down—led me to the sofa, and I laid down.

This inanimate condition lasts about five minutes, and is then followed by one or two hours of unconsciousness, when I walk about, eat, talk, etc., and know nothing of it. I come to my senses as if waking from sleep. Dr. B. told me he was not mistaken, but was perfectly sure it was catalepsy. He also said it sometimes ended in apoplexy, and sometimes in insanity. He told me he would come again and see me about it, but he took a violent cold, and after a lingering illness died recently.

Two days ago, I had an attack before breakfast and while dressing. I was in the act of combing my hair. The family told me that my hands were extended above my head holding the hair and comb, and remained so until it passed oft. I finished dressing, eat breakfast, and was sitting at the piano when my senses returned to me just as if I was waking from sleep. The last I remembered was, starting to comb my hair.

My attacks are becoming more frequent and I dread the worst. I am not a subject for apoplexy, and do not look for insanity, but rather for idiocy. Already my memory is so much weakened that I carry tablets with me for writing down the many little daily things I wish to remember.

I am apparently a healthy woman, looking fully ten years younger than I am, and I certainly do not inherit anything of the kind. Is there any cure for it, doctor? Please be kind enough to write me fully about it. I will try and bear the worst.

On receipt of this letter, I sent the patient, early in January, a supply of tablets of glonoin, each containing $^1/_{250}$ grain, and in reply, received the following communication, which is evidence of the intrinsic value of the comparatively small dose, although no claim is made that the treatment is curative. Comment, therefore, is unneccessary.

* * * * Your very kind letter and medicine was duly received. I immediately commenced taking the pellets according to your directions—

5 daily. I have up to date been taking them fifteen days and have not had a single attack during that time.

This winter the attacks became so frequent that I seldom passed four days without having one, and sometimes they would occur two days in succession.

I have not words to express the hope I feel, that I may yet be cured—may yet retain my mind, although I am sure that my memory is already much impaired.

Was the medicine you sent sufficient for a cure, or was it only as a trial, to see what effect it would have? I have only twelve of the granules left, and to-morrow I will commence taking only three per day, in order to make them last the longer. Please send me more of it, or tell me what it is and where to get it.

Recent Medicaments.

Moyrapuama—A New Nerve-Tonic and Ahhrodisiac.*—In traversing that immense region that, stretching over entire equatorial Brazil, is bathed by the waters of the Amazon, which, together with its mighty tributaries, forms a colossal basin of four million square kilometers in extent, the traveler is constantly struck with amazement at the incredible richness of vegetable life that everywhere meets the eye. One constantly asks himself why it is that even up to the middle of the present century this country has been regarded by civilized peoples simply as a marvel of nature, and spoken of in terms of wonder not unmixed with a feeling of terror, simply as a vast depot, from which the world, with infinite difficulties, derives certain articles of prime importance — valuable and beautiful woods, caoutchouc, cacao, precious gums, odoriferous resins, and medicinal plants which the few botanists who have penetrated the sombre depths of its virgin forests have named by hundreds and thousands, and of which there remain as many more yet to know.

These hot and humid lands of the Amazon, whose fecundity thus amazes us, are distinct from the balance of tropical South America, even of Brazil. The fauna and flora are much superior to those further south, and the lands form a region separate and distinct, whose impenetrability has, so to speak, paralyzed all attempts at opening it up. The population which inhabits the borders of these mighty rivers and their innumerable affluents, is, for the most part, composed of descendents of the aborigines, Guaranis and Tupis, to-day called under the generic name of Tapuyos. While having adopted, to a certain extent, a civilized mode of life, they nevertheless preserve the natural characteristics, and especially the indolence, of their ancestors. It is only with their aid that Europeans or foreigners can undertake anything in the shape of exploration, or even an incursion, into this marvelous region, aptly called by a learned Brazilian the Eldorado of botanists.

In studying the superstitions and learning the secrets of the *feiticeiros*, or medicine men, after gaining their confidence, one is surprised at the extent of their knowledge, religiously guarded, of the virtues of medicinal plants, and of therapeutical applications of the same, learned partly by personal experience and partly by tradition.

Every traveler who has ventured among these people affirms that these vast forests contain an extraordinary wealth of medicinal plants, the greater part of which are altogether unknown to civilization. Dr. Clement Malcher, in a statistical work published in 1881, declares that of the 219 species of trees found in that region, 88 are considered as medicinal, a fact at which one would be surprised did he not reflect that it is here that we have obtained cinchona, cacao, coca,* sarsaparilla, ipecacuanha, copaiba, jaborandi, and a host of others.

---

* By Dr. Rebourgeon. Translated from *Les Nouveaux Remèdes* for *The National Druggist.*

* So says Dr. Rebourgeon, but he is in error. The *Erythroxylon coca* is not indigenous to the valley of the Amazon, but to the mountainous regions of Peru and Bolivia, though it is also found on the eastern slopes of the Andes, in warm damp valleys up to the height of 6000 feet above sea level.—F. L. James.

On the argillaceous banks which constitute *terra firma*, here, in the south and southwest of the State of Para, as also along the branches of the Colombia and the Rio Negro, in the Amazon region, there is found a shrub almost destitute of leaves, and which rarely attains a height greater than two meters (6.6″ or 7 feet), called by the natives *Moyrapuama*, a composite of two Indian words signifying stiff or rigid tree.

The moyrapuama is very well known throughout Brazil, where it is considered a tonic of the nervous system and an aphrodisiac of the highest energy. The first notice that we find of it is in the writings of Portuguese and Spanish priests, who had been sent thither in 1704 to catechise the natives. It is there mentioned as endowed with such high therapeutic virtues that it was regarded by the natives as a panacea, and even in the settlements, the towns and cities, it occupied a high place in the native pharmacopœia, but the difficulties in the way of obtaining it in the settlements were all but insurmountable. All of the Tapuyo medicine men, or healers, sold it at high figures as a talisman. The plant is, in fact, somewhat rare, and the difficulty of finding and recognizing it in the tangled wilderness of these rank jungles is such that its procurement has remained up to the present in the hands of those natural botanists, the indigenous medicine men, who make no small profit of the fact.

Up to the present a complete and competent scientific study of the moyrapuama has not been made. Guided by the general indications of popular belief or superstition, the Brazilian physicians who have written upon the subject have limited themselves to a description of the native methods of preparation of the medicine, and to its therapeutical effects. They affirm that it is not toxic, and that it is a positive aphrodisiac. Some who have given the matter attention have placed it botanically as a *liriosma* of the family *Oleaceæ*. Dr. Kleesattel, of Stuttgart, who wrote a thesis on the plant (*Pharmakognosie der Muira Puama*, Ulm, 1892), took this view, and Drs. Husemann, of Göttingen, Peckolt, of Rio Janeiro, and Rees, of Erlangen, are of the same opinion. On the other hand, M. Glazion, a distinguished botanist, and Director of the Botanical Gardens at Rio, and Dr. Clement Malcher, long time a resident of Para, place moyrapuama among the *Acanthaceæ* (see *Estatistica dos arvores silvestras*, Para, 1881).

Several savants have studied the therapeutical effects of moyrapuama, using in their experiments the fluid extract of the plant furnished them by Brazilian drug houses, and small quantities of the root, obtained in the same manner. Among these it is sufficient to cite Hartwigh, of Brunswick; Hofert, of Berlin; Heger, of Vienna; Kessler, of New York; Pfaff, of Strasbourg, and Kleesattel, of Stuttgart. It is considered by them all to be a tonic, an energetic stimulant of the debilitated nervous system, and they have employed it in paralysis, rheumatism, dyspepsia, and above all, impotence; and all declare that it is efficacious, removing causes of disease and disease itself, without any injurious after-effects. Kleesattel affirms the cure of nine cases of nervous impotency, in which damiana (*Turnera aphrodisiaca*) had totally failed.

Brazilian physicians are unanimous in their declarations of the efficacy of moyrapuama, and among them we may cite the names of Antonio Montero Baena (*Ensayo coregraphico*, Para, 1889); Joachim de Almeda Pinto (*Diccionaria de Botanico brasiliera*, 1873), and Mello Maraes (*Phytographia brasiliera*, Rio, 1881).

M. C. Rebourgeon, charged with a scientific expedition by the Brazilian government, and who lived a long time in the Amazon region, brought back a quantity of the racemes of moyrapuama for the purpose of making an exhaustive chemical analysis. In the latter he followed the methods indicated by Dragendorf in his work on the determination of the proximate principles of plants (Dragendorf, *Plant Analysis*).

The result of his labors was the discovery of a glucoside, now first announced; composite organic matters, tannin, feculent matter, an essential oil, phlobophenes and pectic matter. The proportions established are:

Water, hygrometric	.52
Glucoside	4.02
Essential oil, organic matter, etc.	5.46
	10.00

The glucoside, after decoloration, presents itself as a white powder. It is the active principle of the plant, as proven by physiological experiment. A curious phenomenon which here presents itself is the fact of the very slight toxicity of moyrapuama. In the physiological experiments conducted in the laboratory, on dogs, cats, rabbits, guinea pigs, etc., in spite of the activity of the material, whether crude drug or glucoside was used, it failed to cause death until it was intravenously injected to the extent of a centigram of the glucoside, or a gram of the fluid extract to, each kilogram in weight of the animal experimented upon. Autopsies of the animals thus slain showed always the following lesions: The intestines filled with blood, from the pylorus down to the anus; the gastric mucosa colored an even reddish brown; certain ecchymoses on the surface of the left auriculo-ventricular valves, but nothing on the right heart; the aorta of a red-brown discoloration, and the same with respect to the valves; the genital organs of the male, and the uterus of the female, in a state of light congestion; the nervous centres and the spinal marrow enveloped in a light reddish brown coloration; nothing abnormal in the kidneys, nothing in the bladder, which latter remained full of urine, and nothing in any of the other organs. Females in gestation invariably and immediately aborted upon the injection of a toxic dose. Cold-blooded animals, after receiving a dose of 1 cubic centimeter of the fluid extract preserved their respiratory movements for several hours afterward, and the regular beating of the heart kept up even after the same had been exposed in order to watch and study the effects of the drug. Further, reflex movements are kept up long after the cessation of vital phenomena.

To conclude, the use of moyrapuama appears to be indicated in the treatment of general neurasthenia, and particularly in digestive asthenia, circulatory asthenia and asthenia of the generative organs of the male and female.

Diiodoform.—MM. Maquenne and Taine report in the *Bull. de la Soc. Chim.* on this new antiseptic, with iodine as its base, which is offered as a succedaneum for iodoform in many of its applications, and which is almost completely devoid of odor. The analogy of its effects with those of iodoform is related to its composition and molecular constitution. On analysis, 100 parts are found to contain:

Carbon	4.62
Iodine	95.28

and these figures are very close to the theoretical requirement.

Its formula (C_2I_4) warrants our regarding this body as resulting from the union of two molecules of iodoform, with loss of hydro-iodic acid:

$$C_2I_4 = 2\,CHI_3 - 2\,HI.$$

After the ordinary iodoform, diiodoform, of all known antiseptics, contains the greatest quantity of iodine, hence its therapeutic efficiency.

As might have been supposed, diiodoform is completely insoluble in water, very slightly so in alcohol or ether. Its best solvents are chloroform, carbon sulphide, and, especially, hot toluene, whence it crystallizes in beautiful yellow prismatic needles, absolutely different from the hexagonal scales yielded by iodoform.

When pure, it melts totally at 192° C., emitting abundant vapors. Sudden heating resolves it into its elements—carbon which is deposited, and iodine which is sublimed.

Kept in the dark, it is practically inodorous. Exposed to light, it turns brown and gives forth gradually a characteristic odor.

It exhibits great stability in contact with chemical reagents. It even resists the action of concentrated and boiling nitric acid. Alcoholic potassa alone decomposes it readily under heat.

Diiodoform is prepared by treating periodated acetylene (C_2I_2) with an excess of iodine in solution of sulphur carbonate. Diiodoform remains in the form of a residue insoluble in water.—*Bulletin of Pharmacy*, February, 1894.

MALAKIN is the trade name for salicyl-paraphenetidine *(Western Druggist)*. It forms small, bright-yellow, fine needles, melting at 92° C., insoluble in water, sparingly soluble in cold, but quite so in hot alcohol, insoluble in carbonates of the alkalies, but soluble with a yellow color in soda lye; weak mineral acids decompose it, forming salicyl-aldehyde and paraphenetidine. Malakin contains about 50 per cent. of salicyl-aldehyde. Dr. A. Jaquet has investigated the action of the new remedy in rheumatism, febrile affections, and neuralgic ailments. He administered it usually in 1-gram doses, rarely by the half-gram, 4 to 6 grammes being given daily. Owing to its insolubility in water, the medicament was generally given in wafers, or, in children or patients who could not swallow wafers, with apple or plum jelly. It was nearly always well supported by the patients, and is said to have acted quickly and vigorously. As an antipyretic malakin acts slowly in comparison with antipyrin and acetanilid. Its decomposition by the acids of the gastric juice is the necessary preliminary condition of its efficiency, since it is insoluble in the intestinal juice and, consequently, not absorbable there. The action of the gastric acids being slow and gradual, the malakin is absorbed as it is split up in the stomach; on the other hand, it is the gradual and even fall of temperature which constitutes its great importance, in Dr. Jaquet's opinion. As an antineuralgic, malakin was tried in 12 cases; its effect manifested itself only after 1 to 2 hours, and, in severe neuralgia, was not sufficient completely to dispel the pain.

A MECHANICAL DEVICE FOR ILLUSTRATING THE MOVEMENTS OF THE LUNG IN PENETRATING WOUNDS OF THE CHEST.—Dr. Andrew H. Smith, of New York City, showed before the American Climatological Association an apparatus which consists of two bellows, operated by a handle coming to both, representing the thoracic cavities, and each containing an elastic bag representing the lung. The top of each bellows is of glass. A slot on each side, covered by a slide, represents a wound of dimensions variable at pleasure. Tubes representing the bronchi and trachea connect the two bags. With the slot of one side wide open and the bag on that side disconnected from its fellow, it is seen that the movements of the bellows are without effect upon the bag. But when the connection is re-established, it is evident that the bag receives air from its fellow when the handle is depressed, and that it collapses when the handle is lifted, its movements being exactly the reverse of those of the bag on the other side. When the device representing the glottis is partly closed, this reverse movement is very marked.—*International Medical Magazine*, February, 1894.

SERO-THERAPY.

Pawlowski and Buchstaf, two Russian physicians, conceiving the idea that the grave symptoms of cholera are produced by absorption of the pepto-toxines secreted by the comma bacillus, were led to seek in sero-therapy the means of neutralizing these toxines. The immunity of the animals was obtained in the following manner, commencing with the injection of cultures rendered innocuous by exposure to temperature at which the development of the comma bacillus is arrested: Beginning with cultures of feeble virulence, cultures of increasing virulence were employed, ending with those which had been rendered very virulent by passage through many species of animals. Twenty rabbits and twenty guinea-pigs were employed in the experiment. Subcutaneous and peritoneal injections were made, and the virus was also introduced into the stomach by means of a sound. The results were favorable in every case, the vaccinated animals enjoying complete immunity against cholera.

Pawlowski and Buchstaf proposed to employ the serum of immunized dogs. The first injection of the virus in dogs produced diarrhea and anorexia and general weakness. But following injections, even those made with very virulent virus, produced no reaction, and the serum of these immunized dogs exhibited therapeutic properties of a very pronounced character.

To recognize these properties, the authors began with reactions in vitro which demonstrated its very energetic bactericide properties. They observed not only that the growth of the comma bacillus was prevented by the serum, but further, that a culture of the bacillus in peptonized bouillon to which immunized serum had been added, no longer gave, for twenty-four hours, the reaction of Bonavide (the bluish red color of indol, after the addition of hydrochloric acid). This culture contained then no peptotoxines.

The authors then experimented upon twenty-five animals, with remarkable results. With the serum of animals strongly immunized, they have rendered refractory other animals by injecting .1 or .2 c.c. The injected animals gave no symptoms from doses of the virus which killed animals that had not been protected. Estimating, according to the method of Bruger Ehrlach, the maximum of the immunizing power which they had been able to reach, they found it to be 1 to 130,000. This would require, for the vaccination of a man, .55 c.c. of serum. The immunized serum acts not only by virtue of the biological phenomena in the battle of the organism against the invading microbes, but also in a purely mechanical manner, by coagulating the specific toxines which are very unstable. As to the immunity of serum for man, this was established by the injection received by one of the authors by 1 c.c. of the liquid. No reaction followed.

In one of the guinea-pigs in which the effects of the choleric poison had become manifest, even by the slightest lowering of temperature, it was found impossible to prevent death, even when the amount of serum employed was many times greater than that which was found to be efficient in preventing the disease. The injection of serum must be made before the appearance of the first symptom of the poison; it then prevents death, but does not prevent a development of morbid symptoms.

Klemperer has also made some experiments, after having drawn some blood from two patients who have recently recovered from an attack of cholera. He observed that it was only necessary to inoculate a guinea-pig with 1 c.c. of the serum of the blood of one of these patients, or 50 centigrams of the serum of the other patient, to render the animal refractory to the choleric poison.

A student received, by subcutaneous injection, 50 centigrams of the choleric culture attenuated by heat, and 3.1 grams of very virulent culture. The serum drawn from the blood had acquired an anti-toxic power so great that it was sufficient to inoculate a guinea-pig with 5 milligrams of the serum of this blood to render it refractory to choleric poison. Before employing these injections the serum of this student was anti-toxic only in the dose 1½ grams, showing that its anti-toxic power had been increased 600 times.

Klemperer made the following experiment upon himself: he took by the stomach at different times, within a space of forty-seven days, half a liter of choleric culture in bouillon, the cultures having been previously heated two hours to a temperature of 70° C. (158° F.). He observed that the toxic power of his blood serum was 20 times greater than before.

Five centigrams of the milk of a goat rendered refractory to cholera is a certain anti-choleric vaccine for guinea-pigs. Five c.c. of milk of such a goat injected under the skin of a man, produced no morbid phenomena, but conferred upon his serum microbicide properties of such a character that a guinea-pig inoculated with one fourth of a cubic centimeter became completely refractory to choleric infection.

Modern Medicine, Jan., 1894.

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. MARCH 15th, 1894. No. 9.

Editorial.

BISMUTH SUBGALLATE, OR DIGESTIVE FERMENTS?

The present *furore* in favor of bismuth subgallate is likely to prove its worst enemy, because its general use in all forms of indigestion will eventually create a reaction against it, causing it to fall into disuse. That the remedy is a useful one in certain forms of functional dyspepsia, cannot be denied, but to be successful clinically, the diet must be properly regulated, and with this latter precaution—although the writer has used the subgallate quite extensively during the past three months—the results have been but little, if any more satisfactory than he has experienced from the same dose of bismuth subcarbonate.

Unfortunately, the profession has gotten into the habit of prescribing bismuth in the form of the subnitrate instead of the subcarbonate, and the favorable results following the employment of the latter are not appreciable when the former is given. The reason for this is obvious, since the subcarbonate is an amorphous powder, while the subnitrate is a crystalline substance, and no matter what may be the amount of the dose, it always enacts the rôle of an irritant. But even with the administration of the subcarbonate, and the rule is equally applicable in the case of subgallate, one or other of the digestive ferments should be added. In all cases, the addition of either pepsin or pancreatin, or the simultaneous exhibition of malt extract, will materially enhance the bismuth effects, and we therefore submit this proposition to the profession in the firm belief that it will prevent much disappointment on the part of physicians and patients.

That bismuth preparations act as disinfectants in the alimentary canal is freely admitted, but that they stimulate or measureably improve the digestive function proper, there is room for serious doubt, and it would be well, therefore, in estimating the therapeutics of the remedy to take into consideration the physical demands of the patient. With our superior pepsin preparations and the elegant pancreatic extracts now at our command, it seems the part of wisdom to consider the ultimate effects of indiscriminately prescribing the popular remedy of the day.

To give the present article a practical turn, the following formulæ are suggested as a marked improvement over the use of bismuth alone in the treatment of dyspepsia and indigestion :

℞. Ext. nucis vomicæ.............. gr. ¼;
Pepsin. pur...................... gr. i;
Bismuthi subcarbonas, vel bismuthi subgallas............... gr. iv.

M. et fiat Tab. vel Chart. No. 1.

Sig.: Take one tablet or powder before and after eating.

℞. Ext. nucis vomicæ............. gr. ¼;
Ext. pancreatini .... gr. iss;
Bismuthi subcarbonas, vel bismuthi subgallas.............. gr. iijss.

M. et fiat Tab. vel Chart. No. 1.

Sig.: Take one tablet or powder before, and one two hours after meals.

The first of these formulas will be found available when the fault lies with the stomach; the second when intestinal digestion is deficient. In the former case, the diet should be regulated with a view to lessen the work demanded of the stomach; in the latter, the starchy food-stuffs and fats must be diminished, the diet being principally of a nitrogenous character.

SUBOXIDATION FROM THE LIFE INSURANCE STANDPOINT.

By some the question will be asked, what is suboxidation? At first glance it might appear that it would be a comparatively easy matter to give a satisfactory reply, but when we come to study the bearings of the question, it is, indeed, difficult. And for none is this query of more importance than to the examiner for life insurance. Suboxidation is a condition in which there is a failure in the internal respiration; that is, the reconstructive processes are not sufficiently active, and as a consequence tissue-change is tardily effected, and waste-products accumulate—in the tissues, in the inter-cellular fluids and in the blood. The condition of the system is then much the same as a machine which has been kept in constant use without proper care. The bearings become dry, and the least derangement of alignment is followed by friction and a "hot box."

Assuming now, for the sake of argument, that the human economy is a complex machine; when the bearings get dry, there is friction, followed by a "hot box," or, in other words, fever. Sometimes the friction manifests itself in the brain, when the patient is treated for nervous prostration; when occurring in the kidneys, it is diabetes or Bright's disease; generally, however, the friction begins in the alimentary canal, its effects being first indicated by certain symptoms elsewhere. As a result, then, of impaired digestion, suboxidation is indicated by a varying train of symptoms, and the question for the life insurance examiner to determine is: How long will it be before this friction will produce heat, or fever. In nearly all cases, defective metabolism eventually ends in distinct evidences of suboxidation which will materially lessen the chances of the applicant living out his expectation. This difficulty may be obviated in part by asking the applicant to accept a shorter term policy; but even here, the chances are against the company, for the reason that such persons lack the resistance peculiar to healthy subjects.

To illustrate: Here is an applicant for life insurance, aged 35 years, with a good family history, first-class personal record, splendid physique, but, unfortunately, he has long been engaged in sedentary employment, can't run without getting "winded," feels a trifle dizzy at times and has a *slow pulse*. The digestive apparatus appears to be fairly good; perhaps he is a little disposed to costiveness. He lives largely on starchy food-stuffs and don't like meat. The expectation at 35, is thirty years and 318 days; but this subject will be an old man at fifty. Possibly before then he will have rheumatism; or if he escapes that, in all probability he will suffer from American gout (DaCosta), and long before the expiration of his expectancy he will suddenly die, when everybody will be surprised, and say, how is it possible that such a healthy, fine looking man should so end his life?

If it were looked for, no doubt, friction in the alimentary would account for many of the sudden deaths which so astound the ease-loving citizens of nearly every community. The explanation is extremely simple, since it must be apparent from the preceding remarks, that suboxidation has resulted in producing a condition similar to that which occurs when the bearings of a machine are not properly oiled and kept clean—a "hot box," and examiners for life insurance should be on the look-out for them.

STEAM-HEATING OF RAILWAY COACHES.

After many delays and numerous excuses the railway managers have finally succeeded in establishing a practical system of steam-heating for coaches carrying passengers, and although it does not wholly avert disaster in cases of accident, yet it materially lessens the dangers, and the public is to be congratulated on the change for the better. The passenger, as he seats himself in a car for a day's or a week's trip, feels that he can do so without fearing that his life is endangered from the upsetting of an ordinary heater standing in a distant corner. It is possible that the method is more expensive than by the old plan, but when we consider the immense profit on the shares, it is nothing more than right that a small portion should be so expended for the benefit of the railway patrons—and they are legion. Still, it is not beyond the range of possibilities that in the near future all this may be accomplished by means of electricity, since notwithstanding the rapid strides made in this direction, the science is still in its infancy, not only as a commercial enterprise, but from a medical standpoint. In the meantime, however, let us hope that the dangers from open stoves will be lessened by the introduction of steam-heating upon all railroads throughout the country, and when electricity comes to the fore, we shall be just as much interested in having that introduced as we were in abolishing the deadly stove.

EDITORIAL NOTES.

A Substitute for Hanging.—A bill was lately introduced into the Ohio legislature providing that criminals condemned to death should be submitted to anesthetics and dissected instead of being hung in the regulation manner; but it is doubtful if it will become a law.

Discussion on Diphtheria.—At the next meeting of the International Hygienic Congress, to be held in Buda-Pesth in September, the subject of diphtheria will be considered from every possible point of view, and it is to be hoped that we shall have something more tangible than at present to account for the enormous death-rate in this disease.

The Successor of Charcot.—No permanent appointment has been made but M. Brissaud takes the appointment for a year.

Dr. S. F. Dupon, our friend and a contributor to this journal, died December 7th, 1893, at his home in Fort Harrack, near Savannah, Ga. He lived a long and useful life, and even in his ripe old age maintained an interest in progress in medicine which was frequently manifested by practical contributions to current literature.

Yellow Fever in Rio Janeiro.—At the date of writing the number of deaths from yellow fever in the Brazilian capital averages 123 daily, but of course this is only for the summer season; and the denizens of that tropical country are probably quite as much afraid of the diphtheria, which with us is ever-present, as we are of the yellow fever scourge.

Sanatarium for Diseases of the Nose, Throat and Lungs.—Dr. C. L. Gregory, formerly of Yreka, California, has removed to Yuma, Arizona, where he has opened a sanatarium for the treatment of diseases of the lungs and upper air passages. The place was selected after a careful personal experience in the immediate and surrounding country, and combines purity of atmosphere with dryness, without too great an elevation.

No Code to Speak of.—Quite a number of years ago, two elderly Boston gentlemen were conversing on the subject of religion and charity, when one asked the other how it happened that his friend, who was known to perform many good deeds by stealth, did not say more about his beliefs, his hopes for the future, his good deeds and his *religion.* In reply, this courteous, refined, elegant, liberal, intelligent, christian gentleman said, "The fact is, I have no religion to speak of." When we hear men so enthusiastic about the code, one is inclined to the theory that they themselves feel the need of leading strings.

Newspaper Medication. — Apropos of misfit prescriptions, a word should be added in connection with the craze for newspaper medication, not alone that which emanates from the advertisers of "sure cures," but also the *medical directory* which has lately been inaugurated by some of the more pretentious dailies. The editor of *The Medical Age* recently called attention to the publication, in one of the prominent New York dailies, of a prescription for some ordinary disease in which the amount of strychnine in a single dose was sufficient to kill the patient, and this was allowed to stand uncorrected for a whole month. Finally, when the correction was made, the error was charged to the typo instead of the author of the recipe, who alone should be held responsible.

We are sometimes led to wonder why it is that the hospitals enjoy such a lucrative (?) practice, but an investigation would probably develop the fact that many of these sufferers had already passed through a period of self-medication, as directed by the newspaper doctor, and as a consequence had become disgusted with the profession. Let careful inquiry be made on this score, and it will be surprising how many, even intelligent persons, rely upon newspaper medication.

The Absence of Formulæ.—Readers and subscribers have doubtless been surprised that no more attention is given to the publication of formulæ in The American Therapist, and a brief explanation is in order. In the first place, there are too many formulæ going the rounds of the medical journals; they creep into the secular press, are copied by unsuspecting persons, put up at druggists' shops, and result in much harm, loss of money and injury to health. In the second place, too many of the prescriptions published are such as have been successful in isolated cases, or in the hands of one physician, and are not universally applicable throughout the country. The place to get the most approved formulæ is in a reliable text-book upon therapeutics or practice, where the different remedies are brought together, and their value critically considered. But even here, the difficulty is mainly, that it requires "headwork" on the part of the physician to construct a suitable formula; ready-made recipes are quoted above par. Principally for the reasons given, and also for the additional reason that single remedies are usually far better than combined medicaments, we have steadfastly resisted the temptation to republish formulæ. An intelligent doctor prefers to carry his theories in his head rather than in his hat.

Consumption to be Reported as a Contagious Disease.—The Sanitary Committee of the Philadelphia Board of Health has done a wise thing in recommending that consumption or tuberculosis be reported to the Board the same as are other contagious diseases. Along with this recommendation, they have suggested that in all cases where consumption is in a house, the inmates be advised by the physician and by literature (circulars) bearing upon the subject, the most approved means of avoiding the disease. It is also recommended that when a person with consumption dies, the attending physician shall notify the Board of the need for thorough disinfection of the premises as a precaution against the further spread of the disease.

It is, indeed, high time that something was accomplished for the purpose of arresting the spread of the disease, as must be apparent when it is stated that of the whole number of deaths in ten years occurring in the city of Philadelphia up to and including 1893, those from consumption amounted to 12.52 per cent., while during the same period the percentage of the death-rate from diphtheria, membranous croup, scarlet fever, typhoid fever and smallpox, all combined, amounted only to 7.31 per cent. of the total. This is a most remarkable showing when it is recalled that within the period named, typhoid fever was at one time almost epidemic, and that for the past two or three years there has scarcely been a week without a considerable mortuary record from diphtheria and membranous croup.

SAN FRANCISCO MEETING OF THE AMERICAN MEDICAL ASSOCIATION.—The annual meeting of the American Medical Association in San Francisco next June will undoubtedly attract a large following from the eastern section of the country. The season of the year will be most auspicious for the trip, and many patients will be able to visit that section of the country for the first time, and probably for the only time, in charge of their regular medical attendant. The meeting itself will no doubt be a most important one, not only from a scientific standpoint, but from a social point of view as well, since it will bring together several hundred physicians who are acquainted only through the medium of correspondence or medical literature.

Negotiations are now pending by which it is hoped arrangements will be effected for taking a party from Philadelphia, Baltimore and Washington direct, *via* the Baltimore and Ohio Railway, of which due announcement will be made in our next issue. In another department of this number will be found a list of the National associations, the time of meeting, and the officers of this road to whom applications for transportation should be made. In order to make the trip a success, at least twenty-five persons should join, in which case they will be able to enjoy practically home comforts during the journey. Applications for transportation, rates, etc., should be made at once to the proper officers in order that no delay may occur.

A LIBERAL FEE.—In making of a note of the fee presented to the Czar's physician, we are tempted to exclaim, Sweet Doctor; fat fee! Dr. Sacharin, the medical attendant of His Imperial Highness, has just received a fee amounting to $33,000, which will enable him to keep the wolf from the door for a few weeks.

MUNICIPAL SANITATION.[*]

AN UNSUSPECTED FACTOR IN THE PRODUCTION OF DIPHTHERIA.

Philadelphia, Febr. 13th, 1894.
WILLIAM H. FORD, M.D.,
Chairman, Sanitary Committee.

Sir:—I have the honor to report the following researches:

For some time past cases of diphtheria having been reported from the rural districts, in houses completely isolated, within a radius of at least one-fourth of a mile. I made a personal inspection of several of these premises, located at Roxboro, Torresdale, Island Road, and Fishers Lane.

The sanitary condition of each one of these premises as respects cleanliness, etc., was all that could desired, but I found that upon each of these premises, without exception, where the disease existed, a number of fowls were kept.

We are aware that this disease is due to a soluble poison, enzyme, produced by the bacillus diphtheriæ, and that the true pathogenic microbe of this disease may be transmitted from the lower animals to man; and we also know that fowls suffer from a disease of the throat characterized by the formation of a false membrane; therefore, considering this an important etiological factor in the transmission of this disease, I obtained a chicken from each one of the above premises, choosing one which had a *droopy* appearance, and took some of the secretion from the throat and placed the same in agar gelatine culture, with the following results:

In each case the diphtheritic bacilli of Loeffler were developed.

On gelatine plates, small round colonies were produced.

From stab-cultures, small white drops appear along the track of the needle with a somewhat profuse growth.

Under the microscope, they present small, slightly curved rods, about as long as tubercle bacilli, and twice as broad.

I am not yet prepared to assert the

---

[*] A report made to the Philadelphia Board of Health.

origin of this membrane found, whether it was caused by the soil upon which the chickens fed or the water they drank, but it is certain that these cultures also contained the mycelia and conidia of some fungus. We are also aware that the excreta of these animals has some influence in its propagation. And we furthermore know that it also attacks the cow, developing into a severe pneumonia and neurotic change in the liver; the contagious nature of the vesicular eruption on the udder, and excretion of the diphtheria bacillus in the milk, prove that this is absorbed into the system.

But it is not the mere presence of the bacilli which gives rise to all trouble; certain products which they generate get into the system and produce severe constitutional symptoms.

The practical deduction then, suggested by the above, is that the cause or causes of the origin of diphtheria should not be sought for primarily in high development of civilization, such as sewers, etc., but rather in some condition associated with a more primitive mode of life.

In relation to the disinfection, the one disinfectant above all is *moist* heat, when we can produce a temperature of 230° to 239° F. I would therefore recommend that in every house where diphtheria exists, after fumigation of the premises, that all clothing, bedding, etc., used in direct contact with the patient, should be removed to the municipal hospital, and there subjected to heat of sufficient intensity to destroy all contagious matter.

I would further recommend the employment of *moist* heat for such premises. The sulphur process, as a rule, causes more or less damage to the articles submitted to it.

A small steam apparatus could be constructed, to be placed in a wagon and conveyed from place to place, which would be of great service in any house where rapid steam disinfection was required.

Whatever may be the outcome of future researches there is every reason to believe that the various symptoms which characterize infectious diseases will be shown to be due to the action of poisonous alkaloids, and special ferments manufactured by pathogenic and other microbes. Each microbe, ptomaine, and special ferment will produce different symptoms, and the sum of these different symptoms will characterize the disease.

Very respectfully,
W. W. Myers, A.M., M.D., Disinfector.

Therapeutic Memoranda.

Acetanilid a Substitute for Iodoform.—Dr. Bodamer, of the German Hospital, Philadelphia, reports in a late issue of the *Medical News*, that in all cases coming to this institution requiring surgical dressings, during the past four months, acetanilid has been applied in the form of a dry powder, with suppuration in but four cases. These cases have included extensive scalp-wounds, incised wounds of the arm with severed tendons, and all amputations of digits; simple ulcers following burns of the second degree healed promptly without pus under the use of acetanilid. It is also applied to chancroids, to syphilitic leg-ulcers, and to mucous patches; in the latter cases, the patient is instructed to keep the mouth open for a few moments until the medicine has had time to penetrate.

The Effect of Toxic Substances in the Placenta.—According to the report of M. Polak, *Gaz. Med.*, Paris, January 6th, 1894, certain substances have a tendency to accumulate in the placenta, and while not affecting the mother, may do serious injury to the fetus in utero, an important fact which may throw additional light upon the frequency of miscarriages in these days of heroic medication. For example, copper and mercury readily accumulate in the placenta, and may seriously interfere with the nutrition of the fetus. Lead passes through, and so do arsenic, atropine and phosphorus. This is certainly a very valuable discovery and should be duly considered in deciding upon medication in the case of pregnant females.

Bryonia Alba for Hemicrania.—Dr. J. K. Scudder, *Eclectic Medical Journal*, reports a case of hemicrania relieved by the exhibition of bryonia alba. The patient was a man, aged 63, and looked as if he might be 163. He complained of of severe neuralgia affecting the whole left side of the head and left eye, the pain being paroxysmal and coming on at intervals of about half a minute, which had continued thus for the previous six years. First, the upper teeth were extracted, then the lower, but without avail, and there was extreme hyperæsthesia. At first aconite alone was given in small doses; later bryonia was added to the treatment, and in a week there was some improvement. The combined treatment was continued for another week, at which time the pain and hyperæsthesia had wholly disappeared.

FOR SUMMER DIARRHEA OF NURSING INFANTS. --Toussaint has proved the excellent results by the use of the following mixture in summer diarrheas of nursing infants and those artificially fed:

℞.	Papain pur.............	gr. ix;
	Acidi lactic.............	ʒ ss;
	Syr. simplex...........	f℥ iss;
	Aq. destillatæ..........	f℥ v;
	Tr. vanillæ.............	q. s.

The milk given to the patients is to be limited in quantity, and the intervals between feeding lengthened. After each nursing a coffeespoonful of the mixture is to be administered. The green stools are soon corrected, and the dyspeptic symptoms relieved.—*Gazette de Hopitaux,—Mathews' Medical Quarterly.*

TANNIN AN INTESTINAL ANTISEPTIC.—Notwithstanding the fact that tannin achieved popularity as an intestinal antiseptic injection for the treatment of Asiatic cholera, it remained for Backiewics (*Vrach*) to indicate its value as an intestinal antiseptic when given by the mouth. In a case of gastro-intestinal catarrh, careful examinations were made both before and after, when it was found that the administration of five grains three times daily for a period of three days diminished the number of bacteria from 470,000 to 14,000, certainly a most favorable result. Possibly some one will make an attempt to carry out this line of treatment in affections of the bowels during the coming summer, in which case there is a probability that we shall hear of a diminished mortality from the exhibition of organic poisons.

THE DIURETIC ACTION OF APOCYNUM CANNABINUM.—Dr. Mossa, *Allgemeine Homeopatische Zeitung*, Nos. 1 to 2, 1894, reports some interesting cases showing the diuretic value of cannabinum apocynum, (American Hemp, added to the U. S. P., "1890," in the form of the fluid extract, *apocyni fluidum*). The case was that of a young girl who had suffered from edema for some months. The dose was two to five drops of the tincture every three hours, and recovery followed in four weeks. The disorder was supposed to be of cardiac origin, but the diagnosis was not clearly made out.

Another case was that of a man, aged 64, who had long suffered from cardiac dropsy and edema, in which apocynum produced relief in the period of fourteen days. A third case of ascites following typhoid fever, aged 62, failed to respond to this treatment, but was relieved with arnica.

THE TREATMENT OF GANGLION.—Dr. H. M. Jordan, *Lancet*, July 29th, 1893, has treated successfully twenty-five cases in the following manner:

"The part being scrupulously cleansed, a large hypodermic syringe, with a wide-bored needle which is screwed on, after being carefully made aseptic, is thrust into the ganglion and the contents withdrawn. Often there is considerable difficulty in getting these to flow through the needle, in which event firm pressure on the tumor, synchronous with the aspiration, overcomes the difficulty. The syringe being unscrewed with the needle left in position, a piece of lint wrung out of a 5 per cent. carbolic acid solution is placed at once over the needle, the syringe emptied and then filled with Morton's fluid, is rescrewed on to the needle and the sac partly filled. On withdrawing the needle the "tumor" is freely manipulated, to insure the fluid reaching every part of the interior. A splint reaching to the finger tips is applied, and a thick, tightly folded pad of lint firmly strapped over the tumor, and the arm suspended in a sling."

The Treatment of Pulmonary Tuberculosis with Professor Koch's Tuberculin.—Karl von Ruck, in *International Medical Magazine*, February, 1894, refers to his earlier article, in which he reported (*Therapeutic Gazette*, June 15th, 1891) twenty-five cases of pulmonary tuberculosis treated with Koch's tuberculin. He then gives the present condition of these patients:

Class A, of five cases reported, all recovered, or one hundred per cent. recoveries.

Class B, of seven cases reported, six made a final recovery, and one improved, making eighty-six per cent. of recoveries.

Class C, thirteen cases were reported, six of which have improved, while seven have died.

After giving some precautions in regard to selection of patients and making of observations while they are under treatment, he gives his method of administration of tuberculin as follows:

"Beginning with one-twentieth of a milligram as a trial dose, to which I have never seen a response, the next dose is one-tenth of a milligram, and the increase is thereafter one-tenth until one whole milligram is reached; then I increase one-fifth of a milligram until two milligrams are reached; next one-half milligram up to ten; from ten to twenty milligrams I increase two and one-half milligrams at a time."

He has treated one hundred patients with between six and seven thousand injections, and he therefore concludes that tuberculin is no longer on trial as an experiment, but on the contrary its effects are as reliable and as uniform as one could expect them to be under the great variety of individual conditions, such as constitution, stage of the disease, organs involved, or complications present.

Magnesium Sulphate Hypodermatically for Constipation.—This remedy has recently been tested in the Maryland Hospital for the Insane, and out of one hundred applications, sixty-seven were successful, the bowels being moved in the course of about seven hours. These results seem to agree with, and confirm the studies and deductions of Professor Caldwell, in the series of articles just closed in this journal relating to the actions of drugs upon the intestinal tract. The dose for an adult is small, the effect tolerably certain, barring the presence of complications, and it remains now to determine the exact class of cases to which the plan is best adapted, as it will be apparent that it cannot be applied indescriminately.

Magnesium Sulphate in the Treatment of Summer Diarrhea.—Dr. Stewart Paterson, of Pittsburgh, has revived the old practice of administering magnesium sulphate for the relief of the summer diarrhea of infants. A number of dispensary cases are reported in the *Pittsburgh Medical Review*, in which this method was followed by exceedingly favorable results. The ages of the children ranged from one to six years, and the dose averaged a teaspoonful, given on the tongue slightly moistened, so that it could be conveniently swallowed. This dose was continued daily until the stools became normal in appearance, sterilized food being used meanwhile. There is a question here: Which was the more useful of the two, the magnesium sulphate or the sterilized food? a question which has been already settled by a most flattering report published last summer in the *New York Medical Journal*, in which nothing was given except sterilized food and sufficient water—also sterilized. The suggestion is put forward that during the coming summer, the practical value of this procedure—namely, that of giving sterilized food and water be tried on the babies—and no medicine. Such treatment cannot possibly have a more demoralizing effect upon the children than the plans of treatment recommended in a late text-book, to be referred to in our next number.

Book Notices.

HERNIA: ITS PALLIATIVE AND RADICAL TREATMENT IN ADULTS, CHILDREN AND INFANTS. By THOMAS H. MANLEY, A.M., M.D., Visiting Surgeon to Harlem Hospital, etc. Cloth, 8vo, pp. 231. Philadelphia: THE MEDICAL PRESS CO. LD., 1893. (Price, $2.00.)

Dr. Manley has given us a monograph upon the subject of hernia that is both critical and historical, and yet withal, practical, inasmuch as it embraces the latest and most approved methods of treatment from the modern standpoint. In all the peculiar and complicated cases which come before the surgeon, our author has gone back to the early records and brings us forward to the modern improvements which have been inaugurated; hence the practical nature of the compilation. But it is more than a compilation, since it introduces us directly to the methods and practice of the author, and we thus become acquainted with the details of his work in this special department. It will undoubtedly prove interesting reading for the specialist as well as the general practitioner, more especially the latter because of his inability to purchase the more expensive works dealing with this topic, and we bespeak for it a large circulation.

THE MODERN CLIMATIC TREATMENT OF INVALIDS WITH PULMONARY CONSUMPTION IN SOUTHERN CALIFORNIA. By P. C. REMONDINO, M.D., Member of the American Medical Association, etc. Paper, 12mo., pp. 126. Detroit, Michigan: GEORGE S. DAVIS, 1893. (Price, 25 cents.)

Always interesting and aggressive, our author's *forte* lies in making the most common-place subject attractive, but with the many-sided pictures which are offered by Southern California, he seems to be in his element, and as a consequence the reading of his descriptions is for all practical purposes stimulating. The work is written both for the physician and for the health-seeker, and although characterized by brevity, it must prove of great value to those for whom it is intended. Details are given in regard to the cost of living, the peculiarities of the climate, along with some general information about California weather. Short chapters are devoted to diseases of the respiratory organs, the kidneys, malaria, rheumatism, and other affections, and in addition, in the form of an appendix, will be found a number of tables showing meteorological observations covering the entire year. The suggestion is offered that those who contemplate attending the annual meeting of the American Medical Association next June might find it to their advantage to study this little brochure with a view to becoming familiar with the topography and climate of this particular region. They will then know what to look for, and will be prepared to make criticisms with intelligence.

THE PHYSICIAN'S WIFE, AND THINGS THAT PERTAIN TO HER LIFE. By ELLEN M. FIREBAUGH. Cloth, 8vo., pp. 186. Philadelphia: THE F. A. DAVIS CO., 1894. (Price, $1.25 net.)

Our author has recorded in the form of a friendly chat her views of the trials and tribulations which meet both the country doctor and his help-meet, and while some of these sketches are interesting, even pathetic, there is much that might, with advantage be eliminated and its place supplied with more stimulating material. Too much is said about the mercenary character of those who apply for relief, too little about the thousand and one things which a doctor's wife can and might do, for the benefit of suffering humanity. If the author of "The Physician's Wife" lived in New York or Philadelphia, she would soon learn the eagerness with which the doctors' wives take up the cudgel in behalf of the suffering poor, especially when her good spouse is an active participant in the loaves and fishes which fall from the hospital and college tables, since it is at these times that she is seen at her best. It is to be hoped that a second edition will bring out more of the good qualities of the physician's wife, and dwell less upon the drudgery falling to the lot of the physician himself. Indeed, such a work, properly worked out, might be the means of developing a new industry which could, with advantage, be directly connected with organized charity associations, and thus accomplish a vast amount of good for the public, lessening the number of medical paupers by finding congenial work for the immense army of unemployed.

A Practical Treatise on Nervous Exhaustion (Neurasthenia). Its Symptoms, Nature, Sequences, Treatment. By George M. Beard, A. M., M.D. Edited with notes and additions by A. D. Rockwell, A. M., M. D. Third edition—enlarged. Cloth, 8 vo., pp. 262. New York, E. B. Treat, 5 Cooper Union. 1894. (Price $2.75.)

We are pleased to notice that the demand is such that a third edition of this excellent work has been warranted. American physicians owe it to Dr. Beard, that this important type of nervous trouble was first named and formulated; for as the author says, it is essentially an American disease, brought on usually by the peculiar phenomena that go to distinguish our lives from those of the majority of Europeans. It therefore behooves us to acquaint ourselves with what is not only a common disease, but is apparently growing dangerously more common; and we shall find no more satisfactory exposition of the symptoms, diagnosis and treatment than are to be met with in Dr. Beard's book.

In regard to the medicinal treatment, though the agents suggested by him are excellent, we hardly think that the very large doses advocated are either necessary or wise. The probability is that if molecular nerve vibrations are to be modified, either sedatively or otherwise, the result can generally be brought about without loading the system with such doses as must burden it with extra work; what is said of the various so-called "cures" is, we think, commendable. Every case must be treated on its own merits. One neurasthenic patient may best be treated by absolute isolation and rest; another by travel and change of scene and still a third, may need a full share of daily work. No one sterotyped plan of treatment can prove a success in a malady that is mainly functional in character and so protean in its manifestations. E. B. S.

How to Use the Forceps, With an Introductory Account of the Female Pelvis and of the Mechanism of Delivery. By Henry G. Landis, A. M., M. D. Revised and enlarged by Charles H. Bushong, M. D., Assistant gynecologist and pathologist to the Demilt Dispensary, N. Y. Cloth, 8 vo., pp. 203. New York: E. B. Treat, 1894. (Price, $1.75.)

All those familiar with the teachings and writings of the late Professor Landis will be glad to welcome this book, since it presents his teachings in the light of modern knowledge, a careful revision having been undertaken by Dr. Bushong. It gives brief but succinct instructions, with suitable illustrations where required, and will be read and studied by physicians and students alike. The subjects follow each other in a natural manner, the diction is good and the language excellent, except in rare instances, as for example, on page 179 where directions are given for "keeping all the weight possible *off of* the perineum." Still these slips are by no means uncommon in medical literature of the present day, and we gladly overlook such minor errors, directing our attention more particularly to the substantial character of the teachings which are recorded. Even in this very section criticized is to be found a most important lesson, a lesson, in truth, which has been left too long untaught—for want of knowledge—and we therefore desire to call especial attention to it, *i. e.*, the section devoted to the *perineal body*. Every recent graduate should commit it to memory.

The truly great physician is one who never speaks ill of his medical brother. He is dead.—*Medical Record.*

PUBLICATIONS RECEIVED.

The Diagnosis and Treatment of the Early States of Chronic Bright's Disease. By BOARDMAN REED, M.D., of Atlantic City, N. J. Reprint, 1893.

A Fatal Case of Hyperemesis Gravidarum. By BOARDMAN REED, M.D., of Atlantic City, N. J. Reprint, 1894.

Four Years' Work in Diseases of the Rectum at the Post-Graduate Hospital Clinic. By CHAS. B. KELSEY, M.D., of New York. Reprint, 1893.

The Successful Management of Inebriety without Secrecy in Therapeutics. By C. H. HUGHES, M.D., of St. Louis, Mo. Reprint, 1894.

Nutrition in General Functional Neuratrophia. By C. H. HUGHES, M.D., of St. Louis, Mo. Reprint, 1894.

Report of Two Years' Work in Abdominal Surgery at the Kensington Hospital for Women, Philadelphia. By CHARLES P. NOBLE, M.D., of Philadelphia. Reprint, 1893.

Report of a Year's Work in Minor Gynecological Surgery in the Kensington Hospital for Women, Philadelphia. By CHARLES P. NOBLE, M.D., of Philadelphia. Reprint, 1893.

Fibrous Bodies in the Tunica Vaginalis Testis; with a Report of Three Cases. By THOMAS S. K. MORTON, M.D., of Philadelphia. Reprint, 1894.

Tumors of the Peripheral Nerves; with a Report of a Case of Sarcoma of the Sciatic. By THOMAS S. K. MORTON, M.D., of Philadelphia. Reprint, 1893.

Some Thoughts on Higher Medical Education and Medical Ethics. By DAVID CERNA, M.D., of Galveston, Texas. Reprint, 1894.

Eclectics as Life Insurance Examiners. By J. K. SCUDDER, M. D., of Cincinnati, Ohio. Reprint, 1893.

A National System of Sanatoria; a Plea and a Prophecy. By SAMUEL S. WALLIAN, M. D., of New York. Reprint, 1892.

The Influence of Climate on the Breathing-habit, with a Comparison of American Climatic Resorts. By SAMUEL S. WALLIAN, M. D. of New York.

Opium as an Hypnotic in Old Age. By J. Y. DALE, M. D., of Lemont, Pa. Reprint, 1894.

Uterine Thrombosis following Post-partum Hemorrhage, and its Relation to Puerperal Infection. By W. REYNOLDS WILSON, M. D., of Philadelphia. Reprint, 1893.

Recent Surgical Advances and their Relation to Conservative Obstetrics. By W. REYNOLDS WILSON, M. D., of Philadelphia. Reprint, 1893.

A New Tongue-depressor and an Ear-screw for the Removal of Foreign Bodies. By LOUIS J. LAUTENBACH, M. D., of Philadelphia. Reprint, 1894.

The Etiology and Management of Glaucoma. By G. EDGAR DEAN, M. D., of Scranton, Pa. Reprint, 1894.

A Supplementary Paper upon Supra-vaginal Hysterectomy, by a New Method, with report of additional cases. By B. F. BAER, M. D., of Philadelphia. Reprint, 1893.

Miscellany.

TWO PICTURES.—Make your own Selection. Modern medical journalism has certain characteristics which are peculiar to our age and time. This is the age of the reporter, not ot the scholar. The material of literature is news, not thought; gossip, not work. The chatter of the newsmonger pushes aside the matured thought of the man of letters. We are deluged with a shallow flood of literature, and we are so occupied in paddling about in its smooth and tepid pools that we scarcely care to try our strength in the rougher and colder waters of deep thinking.—*The Provincial Medical Journal.*

CONTAGOUS DISEASES IN THE MUNICIPAL HOSPITAL, PHILADELPHIA.—Dr. William M. Welch, of the Municipal Hospital, presents an interesting report of his work during the year 1893, and the new buildings and other improvements secured during that time. The principal diseases treated during the year where diphtheria, scarlet fever, measles and smallpox. The deaths and death-rate of scarlatina, diphtheria and measles for the year were:

	Admitted.	Died.	Percentage of deaths.
Scarlatina..........	170	32	18.82
Diphtheria..........	217	62	28.57
Measles	12	3	25.00

MICROBES AND SEWER AIR.—J. Parry Laws has made an investigation of sewer-air for the London County Council and reports that the micro-organisms of sewer-air are generally fewer than in the free air in the immediate vicinity of the sewer, and also that those found in the sewer-air are related to the fresh air, and not to the sewage species. So it goes; everything, or at least many things, demonstrated as true from a scientific standpoint are shown by clinical tests to be barren of practical value. Still, it is not likely that residents of London or Paris will make it a point to have sewer-air introduced into their homes with a view to rid themselves of the dangers incident to the presence of fresh air micro-organisms.

THE VITALITY OF MEAT-EATERS.—Sir Frances Head (*Gentleman's Magazine*) says: "The Pampas Indians are all horsemen, or, rather, pass their lives on horseback. In spite of the climate, which is burning hot in summer and freezing in winter, these brave men, who have never yet been subdued, are entirely naked, and have not even a covering for their head. They have neither bread, fruit, nor vegetables, but subsist entirely on the flesh of their mares.

"After I had been riding three or four months, and had lived only on beef and water, I found myself in a condition which I can only describe by saying that I felt no exertion could kill me. Although often so completely exhausted I could not speak, yet a few hours' sleep always so completely restored me that for a week I could daily be upon my horse before sunrise, and ride till two or three hours after sunset; have really tired ten or twelve horses a day. This will explain the immense distances which people in South America ride, which I am confident could only be done on beef and water."

A Ptomaine From the Urine of Influenza Patients has been isolatld by Griffiths and Ladell, as reported in *Comptes Rendus*. The urine was rendered alkaline with sodium carbonate and shaken out with ether. The ethereal solution was then treated with a solution of tartaric acid, which takes up the ptomaine, and the latter is obtained by employing sodium carbonate to render the solution alkaline, shaking out with ether and evaporating the latter.

The ptomaine of influenza is a white substance, crystalizing in prismatic needles, soluble in water with slightly alkaline reaction. It yields a crystalline hydrochlorate, a chlorplatinate, and a chloraurate, and forms a brownish precipitate with phosphorwolframic acid, a yellowish with phosphormolybdic acid, a yellow with picric acid, and a red with tannic acid. A white deposit is formed with sublimate. Nessler's reagent yields a brown precipitate with it; chloride of zinc has no action. The composition of the ptomaine is $C_9 H_9 NO_4$.

The ptomaine of influenza is a powerful poison, producing high fever and death in eight hours. No information is given respecting dose and mode of administration.

It has not been determined whether the isolated microbes of influenza are capable of producing the same poison on artificial culture-media. -- *Bulletin of Pharmacy*, Feb. 1894.

Typhoid Statistics in Philadelphia and London.—According to the *Medical News*, London has a typhoid death-rate of 0.49 per thousand annually, while that of Philadelphia is over 2.0 per thousand. It is further stated that if London's death-rate should equal that of Philadelphia, the total number of deaths from this disease annually in London would be 2700, whereas the actual mortality is but 425 per annum. In this connection, the claim is put forward that all this excessive mortality is due to polluted water, nothing being said of the dangers arising from the upturning of polluted soil, as indicated in our last issue when referring to an exciting cause of disease in Philadelphia.

What was the experience of the city of Munich in relation to the prevalence and persistence of typhoid fever? It was simply this, that for five years preceding 1880, the hospital cases of hyphoid were so numerous that by them the sewers could be traced throughout the city, and the death-rate was enormous. Within the following five years, a complete system of sewage was introduced, when the number of typhoid cases dropped to a small persentage of what it had been during the former regime, and hospital cases became scarce.

The typhoid death-rate in Berlin is but 0.42; that of New York about double; while that of Chicago is worse than in Philadeldhia. Under these circumstances it seems proper that the authorities should undertake a thorough reform in the matter of sewerage, a feat that can be accomplished far more easily and at less expense now than at any time within the next five or ten years. Such a course would also furnish employment to large armies of unemployed men, now reduced to paupery by being compelled to depend upon donations from the rich and charitably disposed. How much better it would be to have this money added to the municipal fund and the whole judiciously expended for the benefit of the present and all future generations.

The Congress of American Physicians and Surgeons.—This organization will meet in Washington, D. C., May 29th to June 1st, 1894. The Secretary is William H. Carmalt, M. D., of New Haven, Conn., who may be addressed for further information.

The Fourth Annual Meeting of "The Association of Military Surgeons of the United States," will be held in Washington, D. C., May 1st, 2d and 3d, 1894.

This National Organisation is composed of Medical Officers of the U. S. Army, U. S. Navy, National Guard of the United States, and the Hospital Marine Service—in whose service are many of the most celebrated and distinguished surgeons of our country. A brilliant and able literary programme will be presented. The afternoon of one day will be set apart for an object lesson from the "Manual of Drill," by the Hospital Corps. The evenings will be given up to social entertainments. There will be about five hundred delegates in attendance. Further information can be obtained by writing to Dr. George Henderson, Chairman Committee of Arrangements, 817 T St., N. W. Washington.

The Pennsylvania State Medical Society.—The following announcement is made relating to the change in place of meeting from Gettysburg to Philadelpia:

In view of the fact that the largest and best hotel in Gettysburg was burnet a short time ago and will not be rebuilt in time for the meeting of this Society, it was deemed best after consultation with the Board of Trustees to change the place of meeting; and as the Philadelphia County Medical Society extended an invitation for this Society to meet in Philadelphia, this was accepted.

The Medical Society of the State of Pennsylvania will, therefore, hold its Forty-fourth Session in Philadelphia, May 15, 16, 17, and 18.

H. G. McCormick, President.

Wm. B. Atkinson, Seretary.

National Medical Societies of America.—Annual Meetings—1894. American Medical Association—San Francisco, Cal., June 5.

American Association of Genito Urinary Surgeons—Washington, D. C., May 29.

American Academy of Medicine—Jefferson, N. H., August 29 and 30.

Association of American Physicians—Washington, D. C., May 29, 30 and 31.

American Dermatological Association—Washington, D. C., May 22.

American Gynecological Society—Washington, D. C., May.

American Laryngological Association—Washington, D. C., May 29.

American Ophthalmological Society—Washington, D. C., May 29.

American Rhinological Association—Indianapolis, Ind., October.

The Medico-Legal Society—New York, December.

The Association of Military Snrgeons of the United States—Washington, May 1, 2 and 3.

Illinois Army and Navy Medical Association—Springfield, Ill., May.

The lowest rates and best routes to the above conventions call on or address B. & O. Railroad agents at any local office in the United States.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, APRIL 16th, 1894. No. 10.

Original Articles.

THE ACTION OF HEAT IN THE TREATMENT OF RINGWORM.

By Abbott Cantrell, M.D.,
Professor of Diseases of the Skin in the Philadelphia Polyclinic, Dermatologist to the Philadelphia and St. Agnes Hospitals, Phila.,
and
E. J. Stout, M.D.,
Instructor in Diseases of the Skin in the Philadelphia Polyclinic.

Our impression is that negative experience, although not generally reported, is, as a rule, much more valuable than some of the nonsensical trash which we read in the medical journals. Of course, we do not mean to belittle in any way, or fail to give credit for the original work that is being done the world over in certain fields, but we think that those who report successful cures in some of the most chronic affections—we refer to those affecting the skin—should have seen the desired result in more than one or two cases. No one will deny that dermatologists have been seeking for some years to give relief and speedily cure affections of the skin of a parasitic nature, namely, those caused by the trichophyton tonsurans—but it is not fair or just to our fellow brethern to give out that such good results can be obtained by any remedy when tried in only one or two cases. It appears to the writers that it would have been better for the editors to have verified these statements before allowing their publication.

The authors must not be understood as objecting to advances in methods of treatment, but hope that American journals at least will exercise proper discretion in supervising the writings of contributors. The writers have lately had the pleasure of reading some good advice on the treatment of tinea tonsurans, and more recently an abstract of a paper by Dr. J. Noir (On the action of heat in trichophytosis.—*Le Progrès Médical,* 1893, Vol. xvii, p. 153), and were very much surprised at his statement that this condition could be relieved in so easy a manner as he describes. Of course, we could realize the aptness of the remark when applied to ordinary tinea circinata, and the readiness with which this or any other ordinary remedy will cure it in a few days, but when the same expression meant that the treatment was as curative in tinea tonsurans, we are obliged to take exception.

Therefore, as many physicians may have read the original article, or an abstract of it, we decided to give the remedy a trial in a number of these cases, and to conscientiously report the results.

The article in question stated that a patient affected with some intercurrent malady and simultaneously with ringworm of the scalp, was treated with some mercurial lotion, applied in the form of hot compresses, which were in contact with the ringworm during his illness. It was found on the patient leaving his bed that the patch was well. This result led Noir to use the remedy in other cases, and the termination in all was the same. After employing it in a number of cases, in lotions of mercury bichloride 1 to 2000 of water, applied by means of hot fomentations, he has given his experience to the world.

The following reports are taken direct from the note book of the clinic:

(1) Boy, æt. 12, has two patches of ringworm, the size of a silver dollar, upon the occiput. The lesions are decidedly

scurfy, in fact, look like a nutmeg-grater; the hairs are broken off close to the head. These lesions have existed for one year. February 18th, a 1-2000 bichloride solution was applied five or six times a day, for an hour at each sitting, by means of hot fomentations. March 11th, there was no improvement.

(2) Girl, æt. 9, has one silver quarter-dollar sized lesion over the parietal region of the right side, with the usual characteristic appearances. Present patch has existed for five months. February 20th, a 1-2000 bichloride solution was applied by means of hot fomentations, and this treatment was continued until March 10th. There was no improvement noticeable.

(3) Boy, æt. 5, has five patches scattered here and there through the hairy parts of the scalp, ranging in size from a ten-cent piece to a quarter of a dollar; duration 3 months. February 18th, a 1-2000 bichloride solution applied with heated cloths. March 4th, no improvement. The patient did not return after this date.

(4, 5) Brother and sister, respectively 9 and 12 years of age. Duration of disease in each case 2 years. A single patch in each case, the size of a silver dollar, on the left parietal region. February 20th, a 1-1000 bichloride solution applied with heated cloths, and continued to March 8th. The lesions did not show any improvement. March 14th, still no improvement.

(6) Boy, æt. 8, duration one week; lesion, the size of a silver quarter, on left cheek; improved in one week under the use of hot bichloride cloths (1-2000). The improvement in this case was, of course, very slow.

(7) Girl, colored, æt. 14; duration 6 months; one patch on occiput (hairy parts); another on the neck just in the region of the nucha, the size of a silver quarter-dollar. February 20th, 1-2000 bichloride applications as in the other cases. February 28th, circinate ringworm well. Lesion on occiput (hairy parts) not improved; March 6th, still no improvement on the hairy parts.

(8) Boy, æt. 2; duration two months; patch, the size of a silver dime on the vertex. February 20th, 1-2000 bichloride solution by means of heated applications; February 28th, no improvement; March 10th, remains the same; treatment changed.

(9) Boy, æt. 15, messenger; patch, the size of a silver quarter-dollar, on left side of forehead (hairy region); duration three years. Has been under treatment at another institution for some time. February 21st, hot applications of 1-2000 bichloride solution; February 28th, increased to 1-1000; March 8th, no improvement.

(10) Girl, colored, 6 years of age; duration 3 months; three patches on the hairy scalp, ranging in size from a quarter-dollar to that of a dollar; two other patches about two or three inches in diameter.

(11) Boy, colored, brother of case No. 10; duration three months. Twelve patches scattered through the head, the smallest being the size of five-cent piece, the larger patches the size of a silver dollar.

Applications of heated bichloride cloths (commencing with 1-2000 and increased gradually to 1-500) were used faithfully for the period of six weeks in cases No. 10 and 11; this treatment failed to show any improvement whatever.

The application of this remedy was carried out in all cases just as Noir directed it should be to receive any benefit, but unfortunately for the patients suffering from ringworm of the scalp, the result was *nil.* In the two cases, however, with ringworm of the superficial surface, the result was somewhat more promising, but even in these it was not as prompt as we would wish to get in these cases.

2422 N. Broad St., Philadelphia.

GELSEMIUM: SOME OF ITS USES.

By J. F. Griffin, M.D.

Under the above caption in the April number of The American Therapist for the year 1893, I undertook to give some of my observations on the use of gelsemium.

I was pleased to see in the same issue in an editorial that this remedy was recommended in *subacute bronchitis*.

I have myself found it admirable in doses of two drops of the fluid extract every half hour, for several doses, in what is termed a *"bad cold,"* and I now use it in just such cases as we formerly used the classical remedy Dover's powder, with the advantage of not constipating the bowels.

Ringer, according to Hare, advises the use of gelsemium (presumably the tincture) in ten minim doses in *labyrinthine vertigo*. I have had no observation of its use in this way.

In *spasmodic torticallis* its use was introduced by Dr. Weir Meitchell, than whom there is no higher authority. The fluid extract may be given for this in doses of four or five drops until fifteen or twenty drops are given, care being taken to watch the effects closely. The full amount in twenty-four hours should not exceed twenty drops. When its physiological effects are manifested, it should be discontinued.

Dr. Hare thinks that a degree of tolerance may be established by watching the effects closely, giving it drop by drop, increasing it, he writes, to 10, 15 or 20 drops each dose. I would not venture to give it in such doses.

I have never used it in *tetanus*, but the above mentioned writer states that it lowers the excitability of the motor portion of the cord, and hence its use would be indicated in tetanus; and he adds that cures through minim doses of the fluid extract have been reported. I consider it worthy of trial in such cases, having the advantage over chloral and its congeners in not clouding the mind, which, in the tetanic condition is always clear.

To relieve the intense itching in *eczema* gelsemium is sometimes given, and I dare say it may be beneficial.

In disturbance of the *cerebral circulation* where there is motor excitement or irritability as one of the symptoms of congestive condition of mental disorders, gelsemium has been used with benefit, but I consider it somewhat unsafe, as being too powerful a cardiac depressant, and think veratrum viride safer.

In confirmation of my use of gelsemium in *neuralgia* of the fifth nerve, mentioned in my previous paper, I quote from Peppers system of medicine as follows:

"Gelsemium is also occasionally very useful in facial, and even in intercostal neuralgia, and is said to be of special service in neuralgia due to carious teeth; the commencing dose of the fluid extract is five minims,* which may be gradually increased to twenty, or until a slight degree of muscular prostration, ptosis or dilatation of the pupil is induced."

In pains from *muscular rheumatism* I have used gelsemium with marked success, always giving satisfaction to the patient. Having experimented upon my own person with reference to its physiological effects, I will give, in a future number, my experience with it with reference to its safety as a therapeutic agent.

Shreveport, La.

REPORT OF A CASE OF ANGINA PECTORIS.

By Herman D. Marcus, M.D.,
Late Resident Physician at the Philadelphia Hospital (Blockley).

W. H., æt. 63 years, comb-maker, was first seen by me March 1, 1893, when I elicited the following history:

Family history: Father died of pneumonia at the age of 72 years; mother at the age of 63 years, cause unknown. Neither had any cardiac lesion or any chronic complaint. One brother died in infancy; one brother and one sister are living, the latter healthy, but the former suffering with "palpitation," shortness of breath, etc.

---

* Note.—When a reliable product is used, five minims (10 drops) will almost invariably produce ptosis and diplopia, physiological effects which are unnecessary and undesirable.—Editor.

Previous history: Had none of the diseases of childhood and was always healthy until coming out of the army in 1865, having served for over four years as a private. Was wounded at the battle of Gettysburg and confined to bed eighteen weeks; otherwise enjoyed good health during his service. Denies venereal history. Has never drank intoxicating liquors to excess, and has drank none at all for the last twelve years. No history of rheumatism.

History of present disease: Soon after leaving the army in 1865 began to feel on exertion what he describes as a "heavy fluttering about the heart," also dyspnea. Was "giddy" at times; worked regularly at his trade up to two years ago, when he experienced "heavy pain about the heart," lasting about a second, reappearing at intervals of about a month. These attacks increased in frequency and duration until about November 1892. At times he would have two of these attacks in one day; a little later he began to experience attacks which he describes as follows: They are preceded for some minutes by a "heavy fluttering," a lancinating pain then arises at about the ensiform cartilage and passes up to his heart, to his left shoulder and his left arm and hand to his finger tips. He describes the sensation as feeling as if the heart is twisted in a vice. A position of opisthotonos is assumed, patient stating that "something" draws him into that position. Pain is relieved by pressure over the heart and especially by heat. During the attack patient sees flashes of flame before his eyes. After an attack the left arm and hand feel numb for some time as though thrust through by needles.

His treatment had consisted for the most part of nitroglycerin and inhalations of amyl nitrite during the attack. He began by taking two drops of a 1 per cent. solution of nitroglycerin three times a day, and this was increased until after four months' treatment he took the immense dose of four drops five times during the day, and twice during the night, making in all twenty-eight drops in twenty-four hours. Despite this heroic treatment the patient averaged one to two anginal attacks daily.

On my first visit, March 1, 1893, I found a fairly well nourished man, rather pale face, and apparently extremely nervous. Physical examination proved all organs healthy except the heart. This organ showed marked hypertrophy, the cardiac dulness being markedly increased; the impulse was strong and full; auscultation showed a blowing murmur replacing the diastole, most marked to the left of the junction of the sternum with the fourth rib. The first sound was somewhat more distinct than normal.

I reduced the quantity of nitroglycerin to gtt. ii three times a day, and twice during the night, but as there appeared no relief I substituted two grains of sodium nitrite (the pure drug), four times daily and one dose during the night. During the attack amyl nitrite inhalations and hot water bags to precordia were prescribed. For the hemorrhages, which consisted of light red blood (not frothy), I ordered gallic acid and ice to suck, this treatment proving sufficient to control them. After three weeks' treatment no improvement was noticeable. The attacks still persisted in their severity and duration, sometimes two or three daily.

On the 27th of March he had a most severe attack, which was closely followed by two more. I returned to the use of nitroglycerin, prescribing then gtt. ii every hour until gtt. xvi were taken, or physiological limit was reached. After six doses his face became flushed, and he complained of headache. The next day he was ordered gtt. iii five times daily. Up to March 31, he had four more attacks.

Recollecting the influence of aconite over hypertrophy, and feeling satisfied that this, causing the valvular changes, in its turn had caused the angina, I concluded to employ aconite as an experiment. On the 31st of March he had an attack, and I then prescribed gtt. ii of the tincture of aconite, three times during the day and twice during the night, discontinuing all other treatment. Up to the 6th of April (148 hours after the last attack) he had no semblance of an attack. That day at 6 P. M. he felt "giddy," but on prescribing an extra gtt. ii of aconite (tincture) this feeling passed away. On the 15th of April he reported 15 days free of any attack, and I then lost sight of the case.

Subsequently I heard that another physician put him back on nitroglycerin, and that the attacks returned with all their former severity and frequency. I have lately heard that he died some months ago.

I have no comment to offer in conclusion. Nitroglycerin is considered the specific in angina pectoris. Here we have to deal with a true angina pectoris, and the nitrites have shown a tendency to augment the disease, while a drug like aconite exerts a beneficial influence. I do not claim priority, but I believe it the only case on record in which aconite was used with such happy results in an angina caused by valvular lesion. I will certainly try its influence on this disease again if opportunity is afforded.

2263 N. 21st Street., Philadelphia.

THE TOY MOTOR AS A RAPID INTERRUPTER.

By Ernest B. Sangree, A.M., M.D.

Some time since I received from the Edison Electric Company a circular, which I presume was sent to the majority of other physicians, describing a new form of galvano-faradic machine, with the especial object of giving a rapidly alternating current for therapeutic purposes.

A method of securing rapidity of interruptions, with constancy, has been greatly sought after of late, on account of the peculiarly sedative effect of such a current; hence the manufacture of such an apparatus as the one referred to. It consisted, if I remember rightly, of a small dynamo having a number of wire spools revolving in front of magnets, or vice versa, I forget which; the dynamo driven by some six or eight cells, and the current passed through a coil similar to that found in Faradic apparatus generally. For the whole outfit I think they asked $125.

While reading this circular, I was suddenly reminded of a toy motor bought some two years ago, and fashioned somewhat after the manner of the one advertised. This motor had a little fan attached, run by means of one large cell with ample zinc and carbon surface, and gave about enough breeze to blow a fly off one's nose, provided nose and fly were in close apposition. Taking off the fan I screwed down the vibrator of my Faradic battery so that it would not move, and inserted the little motor between this large cell and one of the binding posts to which the cell-wires are attached, the other wire not being changed. Upon completing the current in the usual way, my toy motor revolved with tremendous rapidity, the current being made and broken four times with each revolution.

By experimenting I found that a given current, which with the vibrator would be so coarse and jerky as hardly to be bearable, would, when interrupted by means of the motor, be smooth and comfortable, indeed, barely perceptible.

The explanation of this, I suppose, lies in the fact that with the motor the interruptions are so rapid that the muscle-fibers have not time to respond with a contraction, and the current effect is mainly cellular or molecular.

This little scheme pleased me so much that I mentioned it to my friend Mr. Otto Flemming, thinking I had discovered something new. But, alas! Mr. Flemming told me that some Frenchman had discovered it ten years ago. However, I believe his apparatus was quite complicated and expensive, whereas this method is so very simple and inexpensive that I thought it worth mentioning.

Anyone can get a little motor for two or three dollars, attach it in the way mentioned to the Faradic battery he already has, using however one or two good sized cells, and not only secure all the benefits of very rapid interruptions, but, I think, have just about as good an apparatus as the $125 one spoken of at the beginning.

2020 Arch St., Philadelphia.

CHLOROFORM IN COLICA PICTONUM, OR LEAD COLIC.

By E. Macfarlan, M.D.

This well known painful, obstinate and occasionally fatal disease has probably been met with by every physician of much professional experience; the usual therapeutic resort in such cases is opium or one of its preparations, and frequently in combination with calomel, followed by a brisk cathartic in order to relieve the accompanying distressing constipation. But in the case I have to report, as will be seen, morphine failed, and chloroform internally proved more effective.

I was called to H. S., age 40, by trade a painter. He had been painting a room with white lead paint for several days, and the weather being very cold the doors and windows were kept closed. I found him suffering with intense abdominal pain, bowels tympanitic and constipated; tongue with white coat, pale, flabby and tremulous; margin of gums had the bluish-gray line, and breath offensive. The diagnosis was not difficult; it was a marked case of lead colic. I began treatment with croton oil, which induced free alvine discharges, then I gave morphine in frequent doses, also potassium iodide. I continued the morphine for two days, but my patient obtained only slight relief. It now occurred to me that during the year I had successfully relieved the severe pain in several cases of flatulent colic by the internal use of chloroform in from 10 to 20 drop doses frequently repeated, and *ergo* I argued, might it not prove to be as good an analgesic in lead colic? At any rate I would give it a trial, and accordingly proceeded to administer 10 drops every half hour. To my great satisfaction, and to the comfort of my patient, only four doses were needed to subdue the agonizing pain with which he had been afflicted. The same dose was continued half hourly for two hours longer, and at the expiration of this time I again visited my patient whom I found in a very happy frame of mind; he greeted me with a joyous smile as he said, "Doctor, I am almost free from pain." I now ordered the same dose to be repeated every two or three hours according to necessity, and gave the potass. iodide in three grain doses every four hours to antidote the lead poison. From that time my patient made a rapid convalescence.

About six months afterward Mr. S. had another attack of lead colic under similar circumstances which had caused the previous one. On this occasion I commenced treatment at once with chloroform, giving 10 drops every half hour. I treated Mr. S. in precisely the same way as in his previous attack, excepting the omission of the morphine, and he had a speedy recovery. In conclusion I would state that upon inquiry I found Mr. S. had had several attacks prior to the one in which I had been first called, but in neither case had he received such quick relief and so early recovery; then, verily, I think I may claim chloroform, when used internally, as a successful therapeutic agent in the treatment of colica pictonum.

314 W. 126th Street, New York.

Guaiacol, chemically pure in crystals, is the latest achievement of the chemists. It was known that the so-called chemically pure guaiacol in liquid form consisted of only 90 per cent. guaiacol with 10 per cent. creosote and other phenols. Whether or not the new absolutely pure product in crystals will prove better medicinally will yet have to be ascertained by clinical trials.

INFLUENZA: RECENT METHODS OF TREATMENT.

By Roland G. Curtin, M.D., and
Edward W. Watson, M.D., of Philadelphia.

In the treatment of influenza some changes have occurred. Some progress must be made in the management of a disease so long and constantly present with us. Not only do our necessities lead us to employ new measures, but diseases themselves change, and influenza is not an exception to this rule. If any general and marked change in the behavior of the disease has occured it has been in the manifestation of a greater susceptibility on its part to the action of old remedies and time-honored measures. In fact, there has been a revival of a number of old time remedies which have been for a score of years discarded as useless, and which now in our epidemic experience lead us to conjecture that our predecessors were not such fools as we supposed.

New remedies, too, which were unknown to the world in its older epidemics of influenza, have been used with advantage, but in general the tendency has been to treat influenza and its sequelæ on the old lines of treatment, and with far more success than in the years since 1889, and we think that this tendency has gradually increased since that year.

For acute influenza, the salicylates and salicin still hold their popularity, which only increases with time and use, especially since we have in the market pure salicylates, which certainly do not depress the system as did the crude article formerly supplied; phenacetin combined with these still holds its popularity in early stages, while for the cough in the bronchial form, codeine is more and more used in small doses.

For the marked initial chill, spirit. aeth. nit. with spirit. aeth. comp. and chloric ether afford valuable aid, and when these fail to arrest the often convulsive movements and to restore the overwhelmed centres, amyl nitrite and nitroglycerin have often proved successful. Opium in some form at the onset when accompanied by severe pain has given far better results than in former years, with apparently no bad effects; terebene, turpentine, oil of sandal, and oil of cubebs, as expectorants, and ammonium chloride in the later stages have been relied on; but for the persistent tickling, pharyngeal, laryngeal, and tracheal cough, all remedies administered have often failed, but immediate success has been met with by employing a spray of liquid albolene and menthol, five grains to the ounce or more.

Where the grip lung with its pseudo-pneumonic physical signs made its appearance, counter irritation by mustard has seemed best. The pleurises, by the way, which have been encountered this winter were almost invariably plastic and subsided readily on counter irritation and the use of salicylates.

The purely gastric influenza was treated by cocaine, gr. $^1/_{12}$ in ʒ ij of aq. chloroformi, as frequently as every hour, while the diarrheal form was managed readily in most cases by bismuth and opium, cocaine being added where vomiting continued, and in the obstinate cases, and in fact in all the cases which seemed severe at the onset; the bowels were daily flushed out with a 1 per cent. solution of creolin or boric acid. The effect of this was often marvellous, especially in cases attended by high fever, where the subsidence of temperature was almost immediate.

For the resulting prostration and loss of appetite, full doses, ʒ ij of bitter tinctures, as cinchona comp., cardamom comp., calumba and gentian, with full doses of strychnine were given; sometimes caffeine was added. Alcohol, cod liver oil, hypophosphites, iron, and malt still hold their own, and seem the best known agents for the repair of wrecked and ruined constitutions. Opium has been found to be the most useful drug for the meningeal irritation, or mild or threatened meningitis. Vini iodinii comp., suggested by Dr. Potsdamer, has proved of great service in the chronic cases of all forms of influenza. As to the treatment of the profuse and protracted sweating, we might as well say that after trying all recommended remedies, all equally failed of satisfactory results. Fair trial has been made of the following remedies: atropine and belladonna, quinine and sulphuric and camphoric acids, agaricin, picrotoxin and ergot; small doses of jaborandi seemed to do a little good; also alcohol in moderate quantities; also sage tea and boneset. Externally, alcohol and alum were of some use; internally, alum failed. The power of the vasomotor nerves seemed often so impaired that remedies had little or no effect.

---

* Concluding section of a paper read before the Philadelphia County Medical Society, February 28, 1894.

[NOTE.—The sweating in influenza is usually promptly relieved by solutions of nuclein in small doses.—ED.]

*INFLUENZAL NEURITIS.**

By EDWARD W. WATSON, M.D.

In summing up therapeutic results, we can say that rest is an absolute necessity; that electricity has benefited many cases, generally those of long standing, but has injured, at least for a time, many early cases; and that massage, though less powerful for good, has been only less powerful for evil; while counter irritation has been disappointing, and repeated blistering has repeatedly failed.

In the early days of the attack heat has been often valuable, where the whole limb could be enveloped in moist heat as by fomentation, or swathed in hot flannels, or placed in hot water. But no drug has given reliable results. When improvement has been most pronounced, then relapse and disappointment have been most certain. If to this sweeping statement there be any exception, it is in favor of arsenic in very small doses frequently repeated. Of general systemic treatment, such as strychnine and phosphorus, quinine and alcohol, and cod-liver oil, we are not speaking—these may generally benefit the patient, appetite may increase with assimilation, strength and the general appearance of health may return, but the arm or leg be much the same. Mercuric bichloride, iodides, and bromides have given no results; salicylates and salicin have failed to relieve—they may have prevented. Morphine pushed continuously has seemed to shorten the attack in many cases if given early, possibly by enforcing that rest which is so vitally important to cure; atropine, which controls some of the manifestations of nerve disorder, as the chilliness, excessive sweating, and the pulmonary conditions, is a failure in the neuritis under consideration. Hypodermatics of atropine in the painful points or into the affected muscles (biceps itself) have given no good results. Locally, belladonna, menthol, ichthyol, and mercurial ointment have been used with apparent benefit. But viewed in the most cheerful light treatment is unsatisfactory, and prevention is better than cure. Prevention—if the ideas expressed in this paper are correct—by early and continuous rest continued long enough to allow the system to react and the disease to naturally terminate; and exercise when permitted, with such restriction as to avoid tire, general or local; and this will require such confidence on the part of the patient, and such an education on his or her part also, that it will, I fear, be long before the disease is banished by preventive measures.

The treatment of an internal neuritis of a nerve supplying a vital organ resolves itself into a treatment, so far as possible, of the organ involved. To take one case as an illustration—the stomach. All are familiar with the fact that digestive difficulties have been unusually frequent of late; they have taken the form of delayed digestion, with emesis, pyrosis, and eructations. In the majority of these we have found the difficulty to culminate at night, to be least in the early morning. All of them if carefully questioned will give a history of influenza as a starting-point, generally influenza of the gastric form, though perhaps not recognized as such by the patient; they go back to an attack of chilliness and fever with vomiting, fever with loss of appetite, fever with diarrhea. Following these there will often be a history of gastric pains excited by food; often a distinct account of a peculiar pain or mild gastric pang coming on at short intervals after eating, and peculiar in that it starts in the region of the pylorus and travels in a wave or thrill in the direction of the greater curvature from right to left, dying out gradually as it travels, only to be followed by a succession of such pains. As these pains diminish with days and weeks the patient discovers that he has dyspepsia, and if appetite returns he begins soon to suffer after meals in a different way with acute indigestion. After a time the gastric soreness is almost continuous, and nights and days are passed in great distress, and speedily weakness and emaciation occur. Now, these cases seem to be due, judging by analogy, to a condition of the pneumogastrics or splanchnics similar to what we have been noticing in external nerves, a long-continued state of diminished action of the gastric muscles, owing to their supplying nerves having been occluded or interfered with by influenzal disease.

---

* Concluding section of a paper read before the Philadelphia County Medical Society, Febr. 28th, 1894.

Those who have attempted to relieve these cases (which show no evidences of dilatation and rarely of any gastric catarrh) will bear witness to the general uselessness of the old lines of treatment and the new ones as well. They resemble cases of dilated stomach with pyloric obstruction, but are most probably atonic stomachs with normal pylory, in which the force of contraction is insufficient to expel the digested food, or where the almost unknown nervous mechanism of the pylorus is in some way at fault.

When this condition has become aggravated and distress is constant, washing out the stomach will undoubtedly give relief, but acids, alkalies and bitters, pepsin and peptonized foods avail little. From careful observation of the general condition, the observer must be led to conclude that a defective innervation and consequent painful and feeble action of the stomach is the real difficulty, and that the retention of food too long leads to the formation of digestive products toxic to the economy and irritant to the organ itself. Intense irritability is often shown by emesis where the matter ejected seems quite normal; faulty innervation, by the cases when digestion can go on normally for days in the recumbent position, but where the patient on assuming the upright or sitting posture invariably vomits after a definite period of time—half an hour or an hour. That increased irritability is one cause of the delay and distress, is shown by the character of the only drugs which seem to afford relief. Chloroform, cocaine, bismuth, alcohol, and the bromides—these, especially the latter, will in many cases restore appetite, relieve distress, and banish indigestion; but when they fail, we seem left with but one alternative other than washing out the stomach, viz., to give the organ as long and continuous a rest in the twenty-four hours as is possible, in order that it may store up power enough and free itself. This gives immediate relief, and so is willingly pursued by the patient.

As a formulated plan of treatment, it is best to begin with twenty-four hours of semi-starvation, interdicting all food except a gill of hot milk three times in the first day; on the next day ordinary diet can be given in full amount at the morning and noon meals, but after 2 P. M. nothing until the next morning at breakfast. In a few days the appetite will accommodate itself to the circumstances. The stomach relieved and free from pain does its work in better time and manner, and emaciation ceases and weight is rapidly regained. The weight of the patient should be carefully taken at intervals of three days, and when there is no more increase, where further increase of weight is desirable, then more food must be given; and first a return to some form of evening meal should be tried. Milk or a farinaceous food with milk is best borne, and if all is well the patient can return to his former habits in regard to eating, and is cured. If, however, as is often the case, this cannot be done, the extra food may be given in the forenoon—*i. e.*, breakfast at 7 A. M. or earlier; lunch at 11 A. M.; dinner at 2 P. M.; in this way as much food can be taken as ever, but without distress.

When from the beginning the distress has been absent at night and severe during the day—as, for instance, where the most serious suffering is experienced after breakfast—breakfast itself must be omitted or reduced to a cup of milk, while dinner and supper are taken as usual, the necessity being for some period of rest continuously in the twenty-four hours of from fourteen to sixteen hours. The lighter cases, where the mid-day meal alone is followed by indigestion, can generally be reached by bromides and bitters, or by omitting the mid-day meal altogether, even adding additional food at bed-time if the scales show no gain.

How successful this plan of treatment is, how much relief it affords, and how notably the patients gain in weight and spirits, will be realized by anyone who will try it. Crude enforced starvation has always been one of the main remedies of empirics and charlatans in dealing with indigestion, but in the method we have described we believe it to be scientific and valuable.

Cases illustrating the success of this plan, which for want of a better name we might term "digestive rest," could be given in considerable numbers were it desirable to add to the length of this paper; let it be sufficient to say that in genuine post-influenzal dyspepsia the writer has met with very few failures save where undoubtedly the directions were not followed. Where the case is severe and the patient can be induced to give the plan a three-days' trial, his own relief will be a sufficient inducement to pursue it as long as is necessary.

Rest, then, of all remedies seems most fitted for the relief of influenza from its onset to its remotest sequel. There seems always to be a deficiency somewhere or other in the power of sustaining voluntary and involuntary exertion, and a tendency to aggravation or relapse on exhaustion. Did time permit, a study might be made from this point of view of other post-influenzal conditions, showing for instance how the peculiar catarrh of the liver is best treated by relieving the liver of work, in the shape of foods it cannot manage and of cholagogues it cannot endure; how the influenzal affection of the ocular muscles, which baffles the best meant efforts of relief with lenses, yields speedily to darkness and disuse of vision; and lastly, how the mania and delusions of influenza are combated most hopefully by those remedies and means which, like opium, enforce sleep continuously for considerable periods of time.

131 N. 20th Street, Philadelphia.

EUROPHEN.—Dr. Neuberger in *Monatsheften für praktische Dermatologie*, Volume xvii, No. 8, gives a report of the experience which he, in connection with Dr. Oefelein, has had with Europhen.

Almost two hundred cases have been subjected by them to Europhen treatment. Europhen is odorless, unirritating, and has proved serviceable in balanitis, herpes praeputialis, ulcus molle, etc. It is used as powder or ointment; in order to prevent retention or secretion, it is often advisable to apply the ointment over the powder.

In syphilis, Oefelein and Neuberger have frequently used injections of Europhen, 1:100 of ol. olivar., and obtained good results. Eichhoff, who was the first to recommend injections, has abandoned their use, it is true. In general Europhen is a good remedy, adapted for many conditions, and can be earnestly recommended.

Selections.

A NOTE ON THE EMPLOYMENT OF NUCLEIN SOLUTIONS.*

By John Aulde, M.D., Philadelphia.

Nuclein therapy possesses many attractions for the physician. The idea of administering a substance which shall stimulate cellular activity through the medium of the white blood-corpuscles or their nucleus is so closely associated with the vital processes that it becomes especially seductive to the physiologist and the clinician. Nuclein therapy, however, is not a complete therapy in itself; it is merely a branch or subdivision of cellular therapy, which is more comprehensive in its scope. Just as nucleins augment the nuclear activity of the leucocytes, thus increasing the antiseptic power of the blood, we have other remedies which enact a different rôle, as in the case of iron and phosphorus, both of which may prove useful to the organism by supplying it with some element that is wanting. Thus, liver "stimulants" are sometimes useful because they produce sufficient irritation of the hepatic cells to enable them to do more and better work.

Nucleins introduced into the blood perform a two-fold function, since they possess distinct antiseptic properties, and besides they act as stimulants—that is, being poisonous or toxic, they irritate the protoplasm, whether coming into contact with it in the arteries, veins, or intercellular fluid. This double action is most marked when nuclein solutions are exhibited during a period of profound depression, or even that of moderate disability, due to a disorganized state of the blood, such as we see in anemia and malarial toxemia. In the latter class of cases I have noted marvellous changes occurring in the blood within a week, and sometimes even in the course of a few days. For example, the red corpuscles on first examination will exhibit a crenated appearance, with few or none having a round-like, normal contour; when dried, many of the red discs will be found broken or split, and not infrequently we shall be able to discover clear indications of malarial poisoning, with or without the vegetable micro-organism associated with that disease. In the course of a few days after beginning the administration of nuclein solutions, large numbers of healthy corpuscles can be found in the field, and along with them a multitude of the unhealthy discs. When we consider the immense number of red blood-corpuscles in the blood of a healthy human being, estimated at two hundred trillions, we can form only a faint conception of the rôle played by so-called "blood medicines"—if they prove efficient.

In certain directions and under certain restrictions and limitations, I am satisfied that nuclein as a remedial agent possesses powers far beyond any remedy ever introduced into medical practice, as the following brief reports will show. Indeed, it appears to be Nature's own remedy, and with it the clinician will be able to accomplish the most surprising results in the treatment of various diseases.

Case I. *Nasopharyngeal Catarrh, with Chronic Bronchitis.*—Harry, aged thirteen years, weight sixty-five pounds, was brought to me a few weeks ago from an adjoining State, suffering from deafness, naso-pharyngeal catarrh, and chronic bronchitis, all of which is said to have resulted from an attack of influenza which occurred in the early part of the winter. Upon holding a watch to the ear, it was impossible for the boy to hear it unless placed close to the head, although the nerve supply was intact. An examination of the external auditory meatus discovered inflammatory deposits along with impacted cerumen, and the effervescence which occurred when a small portion of hydrogen dioxide was added convinced me that the secretion was not healthy. The additional *local* treatment consisted in the application of dry aristol. There was an almost constant cough, hawking of mucus from the head, and the child had no appetite. Internal treatment for the first four days consisted in the administration of a fiftieth of a grain of potassium bichromate at intervals of two or three hours, so that five doses should be taken during the day. Under this treatment the condition of the ears improved as well as the nasal trouble, but there was no perceptible change in the condition of the bronchial apparatus.

---

* From the *N. Y. Medical Journal*, March 24, 1894.

On the fifth day of treatment nuclein solution was given in small doses at intervals of two hours, and not only produced a notable effect upon the appetite and digestion, but also upon the bronchitis. The father said, at the end of ten days, that the boy was then eating about three times as much as before, and further, that he had gained ten pounds in weight since beginning treatment. The hearing had so far improved that the patient could hear a watch at a distance of fifteen inches, the cough and bronchitis had subsided, and improvement was perceptible daily.

Case II. *Amygdalitis.*—Mrs. H., aged twenty-two years, had been suffering for two or three days from amygdalitis, which domestic treatment failed to relieve. The pulse was rapid, the temperature 100°; there were chilly sensations or "creeps" running up and down the back, and deglutition was painful. This patient began taking nuclein solution at once, a dose being administered at the office, and felt some relief from this dose. The remedy was continued at intervals of an hour, and after taking the sixth dose, all pain and other disagreeable symptoms subsided (this was during the afternoon and evening), and the patient had a comfortable night. There was no further occasion for medication on the following day, and thus ended the attack. In previous attacks she had frequently been kept in the house for a week or more, and had used gargles freely of every imaginable description. I may add that I had attended this patient previously under the same conditions, where the results were equally satisfactory, and could give a long list of similar cases equally flattering as evidence that it was not a mere coincidence.

Case III. *Anœmia.*—Mrs. G., aged forty years, rather spare, was a patient some years ago, but for the past five years she has resided near London, England. When suffering from indigestion she derives benefit from a modified Fothergill pill, and last summer wrote, asking me to send her some of the black pills along with some little pellets which I had given her on one of her trips for seasickness. At the time of writing she said she was under treatment, or had been under treatment, for anemia. With the package of medicine I inclosed some nuclein solution in the form of granules, telling her that if she had not fully recovered from anemia she might derive benefit from the little pellets.

To this letter, with instructions, the patient replied, October 29th, as follows:

> "After writing to you I became much worse and my heart was terribly weak. Dr. E. wished me to consult Dr. De Haviland Hall, in London, as his opinion was, I must lie up entirely for a time, to give my heart a perfect rest. Dr. Hall entirely agreed, so I had to lie up for two weeks, and was treated with iron and arsenic. By the time your letter came I was much better and had made some blood. Two days after I was sent to the seaside, where I remained three weeks and derived much benefit, so I saved the granules until more needed. On my return I again became very pale, and my eyelids had not much color, so I commenced taking the medicine, and now write to tell you the result. After two or three doses I noticed a difference, and in a few days I had more blood than I ever remember. So it has proved a great success, and I am saving the remainder for another time."

Under date of January 24th, 1894, this patient writes the following account of her further experience with the nuclein, although, of course, she does not know what she is taking:

> "My object in writing is to ask for some more of the black pills for liver and indigestion and also some granules for

anemia. I find both benefit me more than any medicine I can obtain here. I have again been suffering from anemic symptoms, and began taking the granules, and am now better. I have some left, but do not wish to be without them."

I forbear making comment on this, as the evidence is quite clear and conclusive, showing that the effects were produced without any hypnotic influence or suggestion on my part, as I only mentioned in the letter of instructions that, in case she had not fully recovered from the attack of anemia, she might derive benefit from the use of the pellets, taken according to the directions.

Case IV. *Masked Malaria.*—Miss M., aged fifty years, has been suffering for a long time from some occult ailment which has resisted the most earnest solicitations of several competent physicians, as well as sanitarium treatment and travel. She suffers from alternate constipation and diarrhea, is very nervous, and has sleepless nights, being usually unable to sleep before four o'clock in the morning. The appetite appears to be fairly good, but she lives principally on starchy foods; likes "grits" for breakfast, but wants her other foods highly seasoned. This condition has existed for several years, and, although she has periods when excessive languor takes possession of her, she has become quite philosophical about the matter. The sleepless nights are the most objectionable, although chloral, sulphonal, and other hypnotics and anodynes, she says, have failed to produce any apparent benefit. An examination of the blood under the microscope shows that there is not a single healthy red corpuscle in the whole field; they are crenated, broken, misshapen, and many of them appear to contain pigmentary deposits. The first examination was made with a one-fifth-inch objective, magnifying five hundred diameters, and the dry specimen, twenty-four hours later, with a one-fifteenth-inch oil immersion lens, magnifying a thousand diameters, both examinations showing practically the same result.

After taking nuclein solution for three days, a second microscopic examination was made, when it was found that the perfect red discs had developed so that they existed in about the proportion of one good one to twenty or twenty-five poor ones. The patient meanwhile, with a regulated diet, had greatly improved; she slept very well the second night, and was able on the following day to go out and walk with comfort, and had more strength than for a long time. I may add that the patient is still improving and the number of healthy red corpuscles rapidly increasing, and there has been no more difficulty with the bowels.

Case V. *Malarial Toxæmia.*—Mr. B., aged thirty years, had an attack of malaria during the year 1881, and again in the autumn of 1889. Since the last attack he has suffered from muscæ volitantes. These spots can be seen by looking toward the light, and have been constantly present for four years and a half.

There is no distinct history of malarial symptoms during the past few years, although, when closely questioned, the patient thinks he has days each week nearly when there is a noticeable languid feeling. The pulse-rate is 72, temperature 97.5° F., and there is no apparent evidence of miasmatic influence at the present time. An examination of the blood discloses that there is not a single healthy red corpuscle, all being crenated or broken.

Treatment by nuclein solution for six days produced no material change, except that the patient noticed that he had rather more free movements of the bowels, with considerable discharge of sulphureted hydrogen. He had also felt disposed to be a trifle more active than usual. A second examination of the blood showed that the number of healthy corpuscles was about in the proportion of one to ten, but there was a multiplicity of microcytes floating in the field when the specimen was fresh. I should have stated that at the first examination I found a number of spherical bodies, one flagellum, some crescentic bodies, and quite a number of corpuscles having indications of the presence or the effect of the action of the vegetable micro-organism found in the blood in malaria.

A third examination of the blood two days after that last described, failed to discover any microcytes, the proportion of healthy corpuscles had perceptibly increased, and the patient said that for two days past the condition of the eyes had measurably improved, the floating spots being less distinct than formerly.

Whether a permanent cure will result from this treatment I am at present unable to say, but with the remarkable changes which have occurred in the blood in the short time mentioned (eight days) it does not seem unreasonable to anticipate favorable results from the treatment adopted. At the time of beginning treatment there was no doubt of the presence of malaria, and the rapid changes which have taken place in eight days being favorable, all lead to the same conclusion. In all clearly marked malarial cases coming under my observation since beginning the use of nuclein solutions, I have never known the remedy to fail in a single instance, and when we bear in mind that it is necessary to medicate no less than two hundred trillions of the corpuscles, it must be admitted that a little time will be required.

NITRITE OF AMYL AND TRINITRIN IN HYSTERO-EPILEPSY.

It is perhaps not out of place to call attention to a bit of recent experience with nitrite of amyl and nitro-glycerin in hystero-epilepsy.

Case under consideration that of Laura W., was first seen with Dr. C. in February, 1891. It exhibited with classical precision the well-known striking features of the disease, consisting of a period of muscular tetanization, loss of consciousness, noisy respiration and deglutition, succeeded by the minor classical movements, rapidly giving place to a series of exaggerated motions or contortions; body taking posture of extreme opisthotonos, which would be exchanged for that of pleurosthotonos, with feet extended, toes pointed and distorted, displaying the *le pied bot hysterique* of Charcot. One attack would follow another, with intervals of quiescence of variable length; consciousness would be restored and no complaint be made, except of severe pain in left ovary and left supra-mammary space. Pressure in either situation named had the effect of lessening or arresting the paroxysm, though the experiment of inducing their return by repeating the application was not tried for fear of provoking unfriendly comment.

Between February, 1891, and November, 1893, there occured two slight attacks, the last of which was a single convulsion, and was due to an injury to the foot, caused by stepping on a nail. November 22, 1893, she was again seized; onset as violent in all its details as in first attack. She was found in extreme opisthotonos. Chloroform was administered, causing slight relaxation. It was repeated again and again without appreciable effect. A two-drop pearl of nitrite of amyl was crushed in the folds of a napkin and held to the nose. Almost immediately muscles rigid as iron bars relaxed, teeth and lips parted, arms fell limp by the sides, the body resumed a natural position bathed in profuse perspiration, and lastly the patient turned on her side and dropped into unbroken slumber, from which she did not awaken for many hours. In the next twenty-four hours there was no repetition, but at the end of that time there occured the last of the series, which was easily controlled by a single two-drop pearl.

On the following day, and each day thereafter, she has received three doses of nitro-glycerin of 1–250 of a grain each, tablet triturates of that strength being employed, which no doubt has kept off subsequent attacks. To date (Dec. 8th) there has been no recurrence and none is expected, as she is able to be up all day and attend to light household duties, and complains less of suffering in ovary and breast, and says she feels much stronger and better in every way than during convalescence after any previous attack.

R. B. McCall, M. D.

The Medical Summary, February, 1894.

IS TYPHO-MALARIAL FEVER A DISEASE PER SE?

Summarizing, I have reached following conclusions:

First: The fever we have in this part of the country every autumn, and called typho-malarial, is not an acute infectious disease; typhoid fever is.

Second: Typho is probably due to pathological changes, the result of long-continued exposure to malarial influences; or, theoretically, to one or more of the six or eight parasites found in the blood of patients suffering from malarial fevers—to some of these quinine is said to be non-toxic. Typhoid is due to a specific poison.

Third: The incubation and duration of typho are much less fixed than that in typhoid.

Fourth: The temperature range of typho is less uniform and regular than that of typhoid.

Fifth: Diarrhea is often wanting in typho, and rarely absent after the first week in typhoid.

Sixth: The typho tongue never evidences the gravity of disease that the typhoid tongue does.

Seventh: I have never seen sordes on the teeth, gums, lips, and in the roof of the mouth, in typho; I have, frequently, in typhoid.

Eighth: I have never discovered the typhoid eruption on the persons of typho-malarial patients. It occurs in eighty-eight per cent. of typhoid patients.

Ninth: Bronchial and pulmonary symptoms are rare in typho; common in typhoid.

Tenth: The nervous symptoms in typho are absolutely wanting, in comparison to their constancy and gravity in typhoid.

Eleventh: The gut pathology of typhoid fever, as discoverable by the symptoms, exists in a much smaller percentage of cases in typho than in typhoid.

Twelfth: By the intestinal dejecta, typhoid fever is disseminated; there is no evidence that this is true of the dejecta of typho.

Finally: Even if the so-called typho-malarial fever of this country is really typhoid fever, the abandonment of the name typho would, in the present status of our knowledge, be premature.

F. L. Sim, M. D.

Memphis Medical Monthly, Feb., 1894.

Recent Medicaments.

Spasmotin (*Sphacelotoxin*). —Spasmotin is a poisonous element of ergot; its action is characterized by causing spasms of the small arteries, which may lead to hyaline trombosis of the latter and to gangrene of the tissues supplied by them; it also has, just as ergot itself, a stimulating effect on the pregnant uterus. Dr. Jacoby, first Assistant in the Pharmacological Institute of the University of Strassburg, succeeded in isolating this substance in chemically pure form.

The method for producing spasmotin is based on its solubility in ether and its insolubility in petroleum ether. The spasmotin is extracted from ergot direct by ether and precipitated by addition of petroleum ether; or the oil contained in ergot is first removed by extraction, and the spasmotin extracted by ether from the ergot. By both methods the spasmotin is obtained free from oil and other admixtures, in an undecomposed chemically pure state, as a yellow powder of amorphous appearance; it is insoluble in water, in diluted acids and petroleum ether, but very easily soluble in ether, and in alcohol, acetic ether, benzol, etc. Spasmotin forms salts with alkalis, and may be again precipitated by carbonic acid. From benzol it may be obtained in crystals. The compound may be expressed by the formula $C_{20}H_{21}O_9$.

The pharmacological effects of ergot are inherent in spasmotin and its soda salt. The latter is suitable also for subcutaneous application, as it does not produce local disturbance of any kind.

Experiments, made in the obstetric clinic of Prof. Dr. Freund in Strassburg i. E., proved that spasmotin yields the same effects as are obtained with secale cornutum. Doses up to 1 grm. may be given without hesitation; but the doses employed in satisfactory experiments so far, have ranged only from 0.04 to 0.08 grm.

Argentamin is a new antiseptic, a solution of silver phosphate in ethylendiamin, which marks a new departure in its class. The peculiarity of this product is that it will not coagulate albumen, and is thus able to exert its full effect unobstructed, and that it liquifies or dissolves the bacilli which it attacks, facilitating their elimination thereby. Professor Vaughan formulated the axiom, in his article on Nucleins in a recent issue of this journal, that no known germicide could be administered safely to the animal body in quantities sufficient to effect the desired action—or words to that effect. Argentamin would seem to supply this deficiency in our resources, and hence further and detailed facts must be anxiously looked for.

Ferratin.—Banholzer, of Professor Eichenhorst's clinic, relates (*Centralbl. f. inn. Med.*) his clinical investigations with this preparation, introduced by Schmiedeberg (*Epitome*, December 2d, 1893, par. 461). In the cases in question the amount of hemoglobin, in most instances, and the number of red cells were estimated. In anemia following acute disease the hemoglobin was quickly increased (over five per cent. in eight days) as also the number of red cells. In chlorosis the same results were visible even in a more marked degree. The general condition was improved and the increase in weight in most cases considerable. The good effects on the appetite were obvious. When compared with Blaud's pills, which also give good results, ferratin was found to lead to a greater increase in the hemoglobin. The results of these investigations are set forth in tabular form. The author concludes that ferratin is a prompt, useful and harmless remedy in chlorosis and anemia following past disease, and is well deserving of further trial.—*British Med. Journal.*

Chloride of Ammonia in Renal Disease.—Corrie finds chloride of ammonia an excellent remedy in cystitis. He prescribed ordinarily a No. 1 capsule of Squibb's pulverized purified ammonium chloride, to be taken three or four times in the twenty-four hours, preferably when the stomach is somewhat empty, each dose to be followed immediately by half a goblet or a goblet of pure cold water. The following are some of the conditions in which the drug has been given faithful trial, with most satisfactory results in *every instance:* Cystitis dependent upon stone in the bladder, stricture, hypertrophy of the prostrate; deposits of urates, etc.; gonorrhœa (male and female); cystic irritation from uterine disease or menstrual disorders, malarial disease, masturbation, early pregnancy, simple urethritis (traumatic) in newly-married women; cystic and renal sequelæ of *la grippe.* In the majority of cases it was simply surprising to note the rapidity with which the urine was cleared of bladder-mucus, blood-corpuscles, pus-corpuscles, urates, phosphates, etc., the distressing symptoms disappearing therewith; and in no case did the salt occasion any gastric or other disturbance when taken as ordered. No explanation of the *modus operandi* of the remedy is offered. The capsules are to be filled only as needed for administration, as the salt dissolves the gelatine in a short time.—*Virginia Med. Monthly.*

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. APRIL 16th, 1894. No. 10.

Editorial.

SCIENTIFIC vs. PRACTICAL.

In the course of a communication recently addressed to the editor by a valued correspondent, he suggested that possibly THE AMERICAN THERAPIST might possess additional attractions for the general practitioner provided its contents were of a more practical character. Now, if this charge were true, or had a semblance of truth, it would, indeed, be a serious one, since the writer has congratulated himself on the exceedingly practical character of the work which has been done on the journal for the past year and a half. Still, there are, no doubt, readers who have failed to grasp the situation, and will not be prepared to accept this denial without confirmatory evidence. But first, it would be well to make some inquiry as to what is meant, or what is understood by "practical," when used in connection with the contents of a medical journal. We take it that the publication of formulæ is regarded by most practitioners as the end and aim of medical skill and study, and while admitting this to be true in part, it is necessary to point out that this is the small end. The big end is found when we come to apply principles in the selection of remedies. The memorizing of formulæ has long been a fad and a fatality to the medical profession, and there are many reasons for believing that if professional men were to take hold of the big end, the future of medical science would be appreciably enriched; but this happy combination will never be attained unless a radical change occurs in the administration of drugs.

To recapitulate some of the scientific principles to which we have given a practical turn, may be mentioned the care that has been devoted to a study of cellular activity (cellular-therapy), referring incidentally to the precise method by which mercurials produce therapeutic effects. This observation is pertinent in this connection, since by reference to "*An American Text-book of the Theory and Practice of Medicine*," edited by WILLIAM PEPPER, M.D., L.L.D., Dr. W. GILMAN THOMPSON, who contributes the article on Syphilis, states on page 357, in each of two different paragraphs that, "Its mode of action is unknown." Again, we have shown most conclusively the rôle played by oxygen in the economy, giving that a practical turn by indicating how it might contribute to save life in emergencies, and how it might be used to promote recovery from illness. These are practical features which have escaped the attention of the ordinary reader; but when it is considered how extensive is the use of mercurials, and how effective oxygen might be employed to save life, the intelligence of the "ordinary reader" may with justice be criticized.

In our attempt to develop the principles underlying the employment of nuclein solutions, the ordinary reader has shown a lack of appreciation, but the time will come when this subject will receive the attention which its importance deserves, and an effort will be made by others to re-write the history of therapeutics recorded in the first two years' existence of THE AMERICAN THERAPIST. But no advance can be made in therapeutics except along the lines we have already marked out, and all future work to be done in this direction will have this record as a guide. It may be a few months, or a few years, but it is only a question of time. The scientific evidence is indisputable, the practical application of these principles has been established; and a generation hence these truths will be recognized just as AVENBRUGGER's studies in percussion were recognized.

MEDICAL TEACHING.

Many physicians are disposed to fold their arms, felicitating themselves that medical science has reached that point when progress in any direction is practically out of the question. Such a commotion has been produced within the past ten years by the study of bacteriology and its etiological relations to disease of every form, that the members of the profession close their eyes against any and every ray of light which does not emanate directly from the bacteriological laboratory. But a careful study of the present condition of affairs, by scanning the more recent medical works, will convince the careful observer that medical science is still in what might well be termed an unbalanced condition. This feature is especially shown by an examination of the "*Clinical Index*" introduced into the new edition of *The United States Dispensatory* just issued. For example, we find recorded no less than one hundred and forty-one remedies for diarrhea, eighty-one for malaria, one hundred and forty for ulcers, although there are but thirteen all told for nervous diseases and nervous irritation, three for measles, and two for nervousness. Such a nondescript disease as "*dropsy*" has as many as eighty-nine.

But this is not all, as nothwithstanding our knowledge of micro-organisms, there are times when, according to our foremost teachers, this knowledge must be set aside as absolutely worthless, empirical methods being substituted. This is well illustrated by the teachings of Professor VAUGHAN, in his contribution, "*Diarrheal Diseases,*" to "*An American Text-book of the Diseases of Children,*" edited by LOUIS STARR, M. D. He mentions the following remedies (p. 495): Mercuric chloride, carbolic acid, creosote, sodium salicylate, sodium benzoate, salol, naphthalin and resorcin, saying, "Much harm and no good can be obtained from them." Further along (p. 499), he advises, in the early stage, the time-honored mixture of castor oil and laudanum; in the later stages with exhaustion, he recommends stimulants (whiskey and brandy), with opium in small doses to relieve pain.

These statements are presented to the profession in cold type and form a part of a modern work devoted to the treatment of children from a supposed scientific point of view; but the plans advocated are as old as the hills, and, moreover, they do not in any respect conform to the demands of modern science. And what is far worse, the method outlined kills more than it cures, the only redeeming feature being that it produces euthanasia, thus lessening the agonizing grief of loving parents. Evidently Professor VAUGHAN is not familiar with the almost miraculous effects of copper arsenite, nor has he thought to give a practical turn to his wonderful discoveries relating to the powerful antiseptic properties of nuclein solutions.

Turning again to the voluminous work on Practice, referred to in the previous article, we find the same disregard of scientific methods, Professor PEPPER himself advocating measures that are now believed by many to be harmful in most cases, dangerous and unsatisfactory in every case. In discussing the subject of "*Enteritis in Children,*" (p. 811), he says, "Stimulants must be used freely, and opium is indispensable. The latter is best given in the form of morphine, and hypodermatically, $^1/_{100}$ of a grain, with $^1/_{600}$ of a grain of atropine, being a sufficient amount for a child of one year. The dose may be repeated in an hour if needed, and after this as necessity demands."

Comment seems unnecessary, but we might add, parenthetically that, with such methods and such treatment, it is not surprising that fond and loving parents of kind and gentle children begin to seek strange gods when trouble comes to them. Even veterinary practice stands to-day on a higher plane from a humane standpoint than the treatment of children by the most advanced teachers in our leading universities.

To relieve this all too gloomy picture and shed a ray of hopeful light for the disconsolate, the following communication from Dr. A. H. Boyer, of Philadelphia, is appended. Coming from a practitioner of high standing, who has had an extensive experience and is thoroughly competent, it should carry great weight with those who are anxious to advance the cause of scientific medicine. Referring to his preliminary trial of nuclein solutions, he says :

"I am prepared to report results in one case, that of a child, aged ten months. The child had a profuse diarrhea and its stomach rejected even the blandest of ingesta. I was called early on the morning of the 4th inst., and prescribed frequent doses of lime-water and powders containing bismuth subnitrate, pulv. cretae comp., each two and a half grains, and one-third of a grain of Dover's powder.

"At eleven P. M., the father came to my office and told me things were going from bad to worse. Recollecting what you told me of the efficacy of the nuclein solution in cholera infantum, and the case presenting symptoms somewhat analogous to those typifying that dread diseasee, I gave him six of the tablets sent for trial, directing him to dissolve them in twenty-four teaspoonfuls of water and to give a teaspoonful each hour until relief was obtained.

"The following morning the father told me the child was better after the second dose, and this morning (the 6th) reported it entirely recovered. Both the powders and lime-water were abandoned after commencing the nuclein solution."

EDITORIAL NOTES.

The Medical Association of Georgia holds its 45th annual session in Atlanta, April 18th to 20th. We have just received a copy of their programme; it shows many interesting features in the exercises and the announced papers. We extend greeting to the participants in this meeting, and invite the authors of papers read on the occasion to send their contributions to the American Therapist for publication.

The Treatment of Hystero-Epilepsy by Trinitrin.—By an oversight the article of Dr. McCall on this topic was omitted last month, although referred to in the article published in the same issue on Catalepsy. Dr. McCall believes the principle sound; and that the results are successful cannot be questioned. The case of catalepsy recorded, at last reports, was making satisfactory progress, although but a single tablet containing 1-250 grain of trinitrin was taken daily.

The San Francisco Meeting.—From reports already published, and from information received from Dr. R. H. Plummer, Chairman of the Committee of Arrangements, the approaching meeting of the American Medical Association promises to be one of the most successful in its history. Nothing has been left undone by the members of this committee which shall add to the comfort and pleasure of those in attendance, so that members of the association from this section of the country may go there with the expectation that their wants will be provided for.

A word should be added here to the effect that the Baltimore and Ohio Railway will make low rates and afford the best accomodations for those who desire to travel *via* Chicago, taking advantage of the Association train, which is scheduled to leave that city on May 28th.

Full information in regard to trains and rates will be supplied on application to any of the Company's agents located at all the principal points in the neighborhood of New York, Philadelphia and Washington.

Correspondence.

SALOPHEN IN SEPTIC INFECTION.

To the Editor :

Sir : I desire to call the attention of the readers of your valuable journal, to what may be a new and *very valuable* use of salophen. In four cases of septic infection, which have come under the writer's observation within the past two months, an exhibition of gr. v. salophen, every four hours, brought the septic process under complete control within four days.

Case I, was a traumatic pyemia which grew steadily worse under quinine, iron and alcohol; periostitis of long bones was marked, as were also the cerebral symptoms.

Case II. Septic infection from metastatic abscesses in axillary glands; cause, trauma.

Cases III and IV, were puerperal sepsis.

The results of the exhibition of gr. v. salophen, alone, in the above cases suggests a more extended trial than can be given the remedy in an individual practice; hence this note is given to the profession.

William A. Galloway, M.D.

Xenia, Ohio.

TINCT. CHLORIDE OF IRON.

To the Editor.

Sir: In reading Ewald's new book on diseases of the stomach I notice his method of administering the tincture of the chloride of iron. I have used it so frequently since then, and always with such happy results, both as to clinical action and pleasant taste, that I desire to call attention to it through the columns of the American Therapist. The method is extremely simple : one-third or one-half of the white of an egg is well whipped up with a little water, in a cup. To this is added a teaspoonful of five to twenty per cent. solution of the tincture of the chloride of iron in water, the egg and iron solution thoroughly mixed and drank by the patient. As a rule patients express themselves as very well pleased with the taste, and the action of the iron solution seems very prompt and thorough, and has none of the corrosive action upon the teeth noticed where the iron is simply diluted in water.

This is undoubtedly old to many of your readers, but possibly there are some who, like myself, had never used such a method, and for the benefit of those I report it.

H. E. Pearse, M.D.,
Demonstrator of Anatomy,
Kansas City Medical College.

WAS IT HYSTERIA ?

To the Editor :

Sir: Neither of the cases about to be mentioned presented the usual symptoms of hysteria. Both were examples of atrocious pain, relieved in rather an unexpected manner, after the failure of seemingly suitable treatment; and on this ground they seem worthy of mention.

Case I.—A married woman, 40 years of age, sterile. Had a fibroid tumor the size of a large orange in the front wall of the fundus uteri, which caused a marked curving forward of that organ. At a former period she had severe hemorrhages, but of late the menses were fairly normal. Soon after a visit to the city, and a good deal of walking, during a menstrual period, pelvic pain set in, which soon became intense, and for many days and nights was barely kept subdued, but not removed, by hot poultices and the administration of bromide of potassium, chloral hydrate, opium, and hypodermatic injections of morphine.

During this time the temperature scarcely rose above 100. Severe pain extended up the right side, and was relieved with difficulty. For a week she was unable to stir, or to be moved. She lay in a fixed position on her back; the least movement causing an aggravation of her pain, which sometimes assumed a stabbing or shooting character, which awoke her from her slight slumber, and caused her to cry out with pain. The only temporary ease she obtained was while under the strong influence of the narcotics.

Neither her former medical attendant from a neighboring town, who was sent for, nor her medical attendants, saw or suspected hysteria. The pain was attributed to ovaritis and the pressure of the tumor, which seemed to be swollen and to have undergone a change of position in the pelvis. This state of things continued for twenty-five days. Then a new Goelet faradic battery was brought upon the scene. At 3 P. M. a treatment was given with electrodes on front and back, but without much effect. The same evening the treatment was repeated, this time the bi-polar vaginal electrode being used, and subsequently the P. pole to a painful spot between the hip bone and the ribs on the right side, and the N. pole on the opposite side of the body. I expected to have to continue this treatment for a time, but strange to say, to the pleasurable surprise of all parties, the pain departed and did not return. In a few days she was up and about as usual. As she has removed to a distant location, I am unable to state her present condition.

Case II.—A married woman, of spare habit, nullipara. For some time she had been under treatment for ovarian tenderness and pelvic pain, associated with a fixed retroversion of the uterus. This condition had been improved by electrical treatment, and for a few weeks she enjoyed improved health. Then, at an early hour in the morning, she was seized with sudden and severe pain in the region of the left side of the pelvis and hip. This time the pain was relieved by hot bran poultices. But it recurred again and again on successive days, and was only held in check by frequently renewed very hot poultices and hypodermatic injections of morphine, in which half a grain became necessary, at least twice a day and sometimes at night.

From the suddenness of the attacks, and the absence of local pain in the ovarian region, upon manipulation, it seemed likely that a calculus of the kidneys might be the cause of extreme pain, though the urine gave no indication of such a condition.

This state of things had continued into the second week, when two circumstances led to a change in the treatment and ultimate cure. These were, first, the fact that the apparent seat of pain could be pressed and manipulated without eliciting any sign of pain; and second, the observation that although apparently suffering great pain she exhibited a marked dread of the slight prick of the hypodermatic needle. Putting these points together, she was put upon tinctures of assafetida and valerian in substantial doses, and improved from that moment, needing neither fomentations nor morphine at any subsequent period, and made a speedy recovery, which still continues.

Neither of these patients exhibited the ordinary signs of hysteria. They were not suspected of such a thing. In neither was there winking of the eyelid, laughter and tears, a volatile temperament or the globus in the throat. I ought to have mentioned that the Goelet faradic machine, which proved so successful in relieving the former case entirely failed in case No. 2.

Was it hysteria? P.

Therapeutic Memoranda.

Bismuth Subgallate.—In reverting to this subject, we desire to acknowledge our appreciation of the work done by Professor Flint, in directing the attention of the medical profession to the valuable properties of this salt in the treatment of functional dyspepsia; but we must take issue with him in his wholesale condemnation of digestive ferments. Evidently, Dr. Flint's experience is diametrically opposed to that of a majority of physicians, who have learned to prize these physiological remedies. As now manufactured, they offer physicians an unobjectionable means of correcting functioual derangements of the alimentary tract, and without doubt, often assist in maintaining and restoring health. And these objects are accomplished by reason of the fact that they supply to the organism something which is wanting, and something which is imperatively demanded in nearly all debilitated contitions of the system. That bismuth subgallate can do this, no one, not even Dr. Flint, will pretend to claim, and it was for this reason that combinations were suggested.

The addition of nux vomica readily commends itself from its known stimulant effect upon the cerebro-spinal apparatus, not to mention its more direct action upon the local mechanism concerned in digestion, points which we are charitable enough to suppose were overlooked by Dr. Flint. The fact remains, however, that pepsin and pancreatin, when used with judgment, will continue to be employd as auxiliaries to other medication in nearly all forms of gastric and intestinal affections where indigestion forms a prominent symptom of the morbid complexus.

LEUCOCYTOSIS AND PNEUMONIA.—In the course of a short paper upon the subject of leucocytosis and pneumonia mortality (*American M-S. Bulletin*, March 1st, 1894), Dr. J. Wellington Byers, of Charlotte, N.C., claims that the increased mortality characteristic of the colored race is due to inherent deficiency in the matter of leucocytosis. This claim, he says, is based upon the researches of G. Björkman, who has demonstrated that the vulnerable condition in this disease is one of imperfect leucocytosis. It naturally is to be inferred that in case of a deficiency of leucocytes, the antiseptic properties of the blood must be less marked, and just in proportion to this departure from what might be termed nature, the disease will prove fatal. The following are the figures which appear to confirm this observation as recorded by Dr. Byers:

"The black race seems to have the richest red globules in a cubic millimeter (5,112,256); then come the Indo-Europeans (Europeans, 5,000,000), (Hindus, 5,008,222), and finally yellow races (Chinese, 4,334,486), (Anamites, 4,238,713). There are also marked differences in the white corpuscles; the Hindus have the largest number, 5,549, Europeans, 5,000, Chinese, 4,611, Anamites, 4,123, and Negroes, only 3,823. These facts, taken in connection with those of Dr. Björkman, would appear to give us a rational explanation of the question as to why pneumonia is more fatal in the negro, namely, the imperfection of leucocytosis. From this cause the pulmonary tissues of the negro furnish a suitable culture media for the reception and reproduction of the diplococcus pneumoniæ, and they succumb because of the want of those agencies whereby the germs are resisted and finally overcome."

In this connection it will not be out of place to mention the notable action of nuclein solutions—which, by the way, supply an artificial product possessing properties identical with the product formed or secreted by the white blood-corpuscles—in the treatment of the disease under consideration. The information comes from the pen of Dr. Samuel Peters, of Cohoes, N. Y., in the form of a private communication to the editor, dated March 26th, 1894, as follows:

"I have used the sample of nuclein in a desperate case of croupous pneumonia, at a stage when I felt certain the case would speedily prove fatal,—one tablet every two hours. Slow but steady improvement commenced with the first dose. The patient, a woman about forty-two years of age with organic disease of the heart, will recover, and I cannot help attributing great value to the tablets."

ALTERATIVES AND CELLULAR-THERAPY.—The editor of the *Post-Graduate* (March, 1894) has shown his wisdom and also his appreciation of the important revelations that are promised in scientific therapeutics, by the publication of the following editorial notes:

"When the thoughtful physician stops to consider and ruminate on the labors of the pathologist and biologist, he cannot but feel that we are on the verge of making signal advances in the treatment of those diseases that have for their *sina qua non* a perversion of nutrition, whether they be classified as functional diseases or as organic. He must feel also, that many things which he has for long been content to accept in a therapeutic way, as articles of faith, are about to be shown to him in the way of revelation; such, for instance, as the mode of action of that larger class of substances known in therapeutics as alteratives. The dictum that many act in an unknown way is being gradually usurped, and may, let us hope, soon lose its sway. Such must be the conviction of the student of biology, who has sought to comprehend the causes of hæmatogenesis and hæmatolysis, and of the therapist, who has concerned himself with cellular-therapy.

"Although the advent of the reign of germs began suspiciously, and has been from the first the staunchest support of scientific men, many firm believers in their potency as causative factors of disease did not lose sight of the fact, that while the cells of the body, not alone the migratory but the fixed cells, remained in a healthy state, the presence of germs was of no importance, and their efforts to produce disease were impotent. Therefore, although by spurts and starts, therapeutic measures have been directed toward the destruction of the germ itself, such, for instance, as in the treatment of tuberculosis and diphtheria, sight has never been lost, of the fact that ten-fold more could be done by measures directed toward the prevention of such diseases, than by efforts to destroy the germ after it had once obtained full tenancy.

"When by minor improvements in the chemical technique of the manufacture of nuclein, this substance can be placed in the hands of the physician, as we are led to believe will soon be the case, we will have, at least, a rational hypothesis to work on in the experimental use of this substance. All men with minds logically trained in the school of exact science, should have and do have, an aversion to theory spinning, but logical conclusion based on rational hypothesis deserves at least respect until it is disproved.

Guaiacol for Whooping Cough.—Dr. Edward Smith, of Oxford, Kansas, in a private note to the editor reports that he has noticed prompt relief following the use of guaiacol in whooping cough, and suggests that the information be given to the profession with the hope that others will undertake the necessary clinical investigations to determine its virtues. The following extract will suffice to show the efficacy of treatment :

"During last December, I had under my care a father of a family who was suffering from tubercular phthisis, and at the time, was giving him along with other treatment a mixture containing as its most important ingredient guaiacol. The family of children were attacked with whooping cough and the father's rest was much disturbed by the children coughing at night. They were taking no treatment, and he ventured to give the guaiacol mixture because it had done him much good. He scaled the doses down according to his own judgment, and the children were at once relieved. This treatment was continued, and when he came to see me a few days afterwards, reported the occurrence, saying they were cured and no vestige of cough remained."

"This was about the close of a local epidemic of whooping cough, and I have not had a case since where the remedy could be again tried.

Dr. Smith adds further: "Physicians not familiar with the drug should bear in mind that it must be pure, and should be kept in colored bottles away from strong light, and not allowed to become warm. As a vehicle for its administration almost any aromatic or sweetened compound is suitable, preferably containing a little alcohol."

INHALATIONS OF MINT FOR PHTHISIS.—Carasso, Director of the Military Hospital in Genoa, reports a number of successful cases in the treatment of pulmonary tuberculosis by inhalations of mint essence. The results were good, not only in the early stages, but even after large cavities had formed and when the sputa were loaded with bacilli. Fever, when present, disappeared in a few days; the cough and expectoration were notably diminished, the night sweats ceased, and the bodily weight increased. The bacilli disappeared entirely from the sputum in periods varying in the different cases from two weeks to two months. The physical signs in the lungs also improved and became perfectly normal in several instances, in which no destruction of tissue had taken place. Just how much of this amelioration should be attributed to the inhalations of mint is, however, uncertain, for the patients were subjected to a system of forced feeding and to the internal administration of creosote.—*Medical Record.*

THE SCIENTIFIC TREATMENT OF INEBRIETY is simply the application of every means known to science, experience, and common sense; to remove the patient to the safest surroundings; to repair the injuries done to body and brain, and build up the man so as to prevent future failure. This can only be done effectively in literal training hospitals, where the physical comes first, then the mental and spiritual. It is no implication that the exclusively moral means urged by many good people are not valuable, but science teaches that their value depends on the conditions and time in which they are used. The appeal, pledge, or prayer does not reach the starving man; but give him food to build him up, and these means are valuable. The inebriate is starved in a most literal sense, and needs relief and literal help first. All asylums and hospital where inebriates are treated are based on this fact: Removal of the spirits, and repair of the brain and nervous system, gives the most certain possibility of cure and restoration. Experience shows that a certain increasing number of inebriates are permanently cured in these places every year. Unfortunately for asylums, nearly all these curable cases disappear from view, and never refer afterwards to the benefit received from such places. Public sentiment makes it necssary for many persons to conceal this part of their life. On the other hand, the incurable, who has not received any permanent good, takes pains to condemn the asylum and its work, and is a standing monument of his own failure. The very few asylums now in operation are only the advance guard of a new era in the treatment and cure of these cases. There are many reasons for believing that not far away in the future every town and city in the country will have hospitals for this class, the same as for the insane at present.—Dr. CROTHERS, in *Am. Lancet.*

THE MODERN TREATMENT OF DIPHTHERIA.—Dr. Louis Fischer, in the *Post-Graduate*, April, 1894, reviews the methods in vogue, and sums up:

1. Local disinfection—naturally distinct nasal antisepsis by means of naso-pharyngeal irrigation; this can be done by irrigating with warm salt water (one drachm to the pint), the addition of bichloride of mercury (1 gr. to the pint), or of borax (one to two drachms), or acid salicylic (four grains to the pint) is regarded as an improvement by some. It should be thrown with enough force to flow out the other nostril and partly by the throat. Tearing the membrane or using force will cause epistaxis, and is not advisable. Jacobi says, page 208 in his treatise on diphtheria: "When they see benzoate of sodium destroying bacteria in a glass vessel they take it for granted that the human system will permit of the same action as a glass vessel. Thus benzoate of sodium is sent into the stomach or into a pulmonary artery under orders to do the

same as it does in the laboratory. The drug has in consequence had a short life after having been extolled in a very limited time by microscopists, etc." Jacobi concludes by saying that as an antidiphtheritic or antipyretic it utterly failed.

Frequent applications of pepsin, trypsin or papayotin with a medicine dropper may be indicated in some abstract cases. Nasopharyngeal irrigation will cause the neighboring enlarged glands to become reduced in size quicker than all other treatment combined.

2. Sponging with electrozone hourly.

3. Internal administration of stimulant drugs—ferri-chloride for tonic effect. Alcohol, no matter at what stage, is indicated in all cases of septicæmia, be they diphtheritic or not.

4. Liquid diet—milk, beaf tea, milk punch; rectal feeding, if necessary.

5. Local applications of cotton swabs moistened with bichloride $^1/_{1000}$ to $^1/_{600}$, applied with gentle pressure every two hours, as an abortive plan of treatment, if the case is seen early.

6. Antipyretics—if at all useful, salicylate of sodium is the best in doses of two to fifteen grains every hour or more, according to the age and tolerance of the patient. If the drug is not well borne, then antipyrine or antifebrine may be given.

The temperature in uncomplicated cases of diphtheria has given me little trouble, except when complicated by scarlatina.

Cold applications—cracked ice and ice cream are very grateful to patients. Calomel to empty the bowels and reduce the temperature is a mercurial salt, besides being a valuable intestinal antiseptic. Orange and lemon juice are also highly beneficial.

The complications and their management must be considered in each case. So must also the question of both intubation and tracheotomy, to which I can only refer. Every case must be studied, and the treatment based on the previous habits, the general condition, the severity of the attack and the amount of the infection.

A CASE OF MYXŒDEMA.—Dr. Robert E. Bell, of Lowell, Mass., reports in the Boston *Medical and Surgical Journal*:—There has been so much written on this subject, and it is so prominently before the profession, that I wish to report my one case, as it has presented some features that I have not seen mentioned.

Mrs. B., fifty-four years of age, consulted me first January 7th, 1894. Family history, good. Father and mother both to be almost seventy; two brothers and four sisters living. She dates her symptoms from about eighteen months ago. She comes to me because she cannot see to read, and thinks her glasses need changing. $V = {}^2/_{10}$; glasses do not improve her vision. Ophthalmoscopic examination simply shows the fundus somewhat paler than normal.

Patient says that about eighteen months ago her face and hands began to bloat, and she had difficulty in keeping hold of objects in her hands, was constantly dropping dishes, etc. Then her limbs began to swell; and finally she noticed she could not get her clothes on alone, her arms were so useless. She had become very sensitive to cold. Her hands and arms pained her so she could sleep but a few hours. Was dizzy, and felt like falling if she attempted to walk. No appetite. Urine at times very heavy and almost black. She could not go up stairs without getting out of breath. When she came to me, there was pallor of the face and a puffiness about the eyes. There was œdema about the ankles and legs. The skin of the hands was dry and rough. The hair had no lustre. She talked very slowly and deliberately, and walked as though completely tired. Examination of urine was negative.

Supposing I had a case of myxœdema to deal with, I ordered the thyroid extract of Parke, Davis & Co., in doses of five grains, twice a day. At the end of one week patient was better, but complained of some nausea, and pain in her back and legs. I decreased the extract to three grains twice a day, and kept it up until the middle of February, then reduced it to about two grains a day.

At the present time she considers herself well. I certainly never saw a more marked improvement in any patient. She eats well, sleeps well, and breathes well. Her vision is now all right, with the lenses suited to her age.

Book Notices.

A TREATISE ON HEADACHE AND NEURALGIA, INCLUDING SPINAL IRRITATION, AND A DISQUISITION ON NORMAL AND MORBID SLEEP. By J. LEONARD CORNING, M.A., M.D., Consultant in Nervous Diseases to St. Francis Hospital; Fellow of the New York Academy of Medicine; Member of the New York Neurological Society, etc. With an Appendix on Eye-strain as a Cause of Headache; by D. WEBSTER, M.D., Prof. of Ophthalmology in the N. Y. Polyclinic, etc. Illustrated. Cloth, 8vo, pp. 275. New York: E. B. Treat, 5 Cooper Union. 1894. (Price, $2.75.)

This third edition of Dr. Corning's book is a neat volume of 275 pages. As may be inferred from the title, a wide range of subjects of great practical interest and importance is brought under discussion. On some of these, it has not been easy to present much that is original and altogether new. The chief interest of the book is to be found in the presentation of the ingenious mechanical methods devised by the author for prolonging the local anesthetic effects of cocaine and similarly acting drugs. This is effected by producing a temporary local stasis of the circulation after the entrance of the medicament. Cases are given illustrating the success of this mode of treatment.

The chapter devoted to the treatment of neuralgia by ordinary drug medication is rather meagre; while the brief reference to the employment of electricity for the relief of pain, altogether fails to do justice to that powerful agent as employed in recent times. The appendix containing several chapters by Dr. Webster on eye-strain as a cause of headache, is important, and is a subject deserving more consideration than has usually hitherto been accorded it.

Altogether, Dr. Corning is to be congratulated on having made a distinct advance on the treatment of these distressing and painful affections, for which the older routine treatment was too often ineffectual.

P.

A PRACTICAL TREATISE ON THE DISEASES OF THE HAIR AND SCALP. By GEORGE THOMAS JACKSON, M.D., Professor of Dermatology, Woman's Medical College, N. Y. Infirmary. New revised and enlarged edition. Cloth, 8vo., pp. 414. New York: E. B. Treat. 1894. (Price, $2.75.)

The second edition of Dr. Jackson's excellent work on the hair and scalp shows a careful study and compilation of the results of late investigations into the cause and treatment of this class of troublesome and often refractory affections. The bibliography referred to in the latter part of his book is voluminous and complete, displaying a painstaking study.

The body of the work is rendered especially satisfactory from the fact that at a glance one can find for each separate disease the treatment and views offered by all the principal investigators and clinicians of the world. As would be expected, bacteriology and parasitism assume more and more importance in relation to diseases of the hair and scalp, as they do elsewhere. The subject of alopecia very properly receives considerable attention, but a careful perusal fails to discover any satisfactory reason for the rapidly increasing army of bald-headed men, or a plausible or likely method of treatment for retaining one's hair, when it manifests an anxiety to part company.

E. B. S.

ANTISEPTIC THERAPEUTICS. By Dr. E. L. TROUESSART. Translated by E. P. HURD, M.D. Paper, 2 vols., pp. 129 and 316. Detroit, Mich.: George S. Davis. 1893. (Price, 25 cents each.)

This interesting work appears in two volumes of the Physician's Leisure Library series. The first portion of the work is devoted to a study of antiseptics from a chemical, pharmaceutical, and physiological point of view, while the second volume, or part, relates to the antiseptic treatment of diseases which belong to internal pathology. Beginning at the mouth the author follows down the digestive tract, afterwards taking up diseases of the circulatory, genito-urinary and nervous systems, and continuing with the relation of antisepsis to the general infectious diseases, and local diseases.

The book is plentifully provided with formulae. But antiseptic substances are known to have, or at least are supposed to have, a certain and more or less constant effect. They are in this respect greatly different from the ordinary historical drugs, about whose method of action such extremely diverse opinions can safely he held. There seem, therefore, good reasons for giving definite formulae, found by investigators to be safe and sufficient, and for the book's readers to adopt such formulae.

PUBLICATIONS RECEIVED.

Actions of Drugs on the Intestines. By W. C. Caldwell, M.D., of Chicago. Reprint, 1894.

Inoculation of Diphtheria and Membranous Croup. By W. W. Meyers, M.D., of Philadelphia. Reprint, 1894.

The Paralyzing Action of Strychnine. By Thomas W. Poole, M.D., of Lindsay, Ontario, Canada. Reprint, 1894.

Leukopathia Unguium. By E. J. Stout, M.D., of Philadelphia. Reprint, 1894.

Buffalo Lithia Water. Medical Opinions and Clinical Reports. Compiled and edited by E. C. Laird, M.D., of Buffalo Lithia Springs, Va.

Helbing's Pharmacological Record, No. XXV. (Piperazine: A Monograph, with experiments.) London, January, 1894.

The Trials and Tribulations of a Surgeon. By C. R. Pontius, M.D., of Fremont, Ohio. Reprint, 1894.

Indirect Massage of the Lens for the Artificial Ripening of Cataract. By Edward Jackson, M.D., of Philadelphia. Reprint, 1893.

Retinitis Albuminuria. By L. Webster Fox, M.D., of Philadelphia. Reprint, 1894.

The Diagnostic Value of Ehrlich's Diazo Reaction. By Charles L. Greene, M.D., of St. Paul, Minnesota. Reprint, 1894.

Address Introductory to the Course in the Medical Department of the Western Pennsylvania University, Pittsburgh, Pa. By William T. English, A. M., M. D., of Pittsburgh. Feick Bros., 1893.

Philadelphia County Medical Society. Annual Meeting in the Interests of the Mutual Aid Association. December, 1893.

Some Hints on Use of Ergot in Labor. By R. B. McCall, M.D., of Hamersville, O. Reprint, 1894.

The Treatment and Cure of Chancre with Peroxide of Hydrogen (Marchand's). By Willard Parker Worster, M.D., of New York. Reprint, 1894.

NEW MEDICAL JOURNALS.

The Southern Medical Review, a monthly journal devoted to medicine and surgery, is announced to appear in May from Houston, Texas. Dr. N. J. Phenix will be editor and proprietor.

The New York State Medical Reporter is a new venture of Dr. H. Bronson Gee, issued from Rochester, N. Y. The first number, dated March, 1894, makes a neat appearance typographically, and contains a goodly amount of matter, original and selected—equal parts. It has our good wishes for success.

Therapeutic Notes is the name of a new medical journal, published by Messrs. Parke, Davis & Co., of Detroit, Michigan, the first number of which appeared in February. It contains twelve pages of reading matter, a considerable portion of the number being devoted to the discussion of the questions connected with the chemistry and therapeutics of cod-liver oil. It also contains suggestions relating to the use of different remedies and combinations prepared and for sale by this well-known firm of manufacturing chemists.

The Alkaloidal Clinic is a twenty-four page journal devoted to accuracy in therapeutics, with practical suggestions relating to the clinical applications of the same, the latter clause being an adaptation from the sub-heading of the American Therapist. It contains a number of interesting and readable papers by well-known contributors to medical literature, and on the whole presents an attractive appearance. We note with pleasure the fact that Dr. Abbott, the editor has discarded the narrow gauge of dosimetry and starts out on the regular standard. We have received the second number, the first being issued in January. The subscription price is one dollar per annum, and all communications should be addressed to the editor at Ravenswood, Chicago, Ill.

Mathew's Medical Quarterly, a journal devoted to diseases of the rectum, gastro-intestinal diseases and rectal and gastro-intestinal surgery, the second issue of which has reached this office, is an elaborate literary venture, and judging from the character and number of excellent contributions, promises to supply the specialist as well as the general practitioner with valuable data in this special line of work. The issue for April contains no less than one hundred and twenty-three pages of original reading matter, and the subscription price is but two dollars yearly. Dr. Joseph M. Mathews is editor and proprietor, with Dr. Henry E. Tuley, as associate editor and manager. We bespeak for the new aspirant a favorable reception on the part of the profession, and trust it may be the means of stirring up a commendable spirit or rivalry among some of the older journals which still cling to the beaten track, long since overgown with moss and covered with the rust of calomel, quinine and opium.

Miscellany.

New York Pasteur Institute.—According to the report of Dr. Gibier, the number of cases treated at this institution during the past year (1893) was eighty-five. In twenty-six of the cases the presence of hydrophobia was evidenced by the fact that some person or animal bitten by the rabid animal died from the effects with the symptoms of hydrophobia. In eleven cases the presence of hydrophobia was demonstrated by clinical or veterinary examination, while in the remaining forty-eight the disease was merely suspected. The records show that patients from many distant states were placed under treatment, and as a further confirmation of the efficacy of treatment, it is stated that no deaths occurred among the whole number thus subjected to the Pasteur treatment.

Physicians Cannot Testify.—The policy of the law is to make the relation of physician and patient confidential and sacred. Only the patient himself, or, in case of his death, his legal representative, may waive the seal of secrecy and confidence. Thus holds the Supreme Court of Indiana, in the case of Gurley vs. Park, decided November 23rd, 1893. The application given to this doctrine here is to the effect that in a case where there is no legal representative, as administrator or executor of a deceased person to make waiver, the physician who attended her cannot testify in an action to set aside her will as to her mental condition at the time she made the will, he being present in his professional capacity. The law, this court says, forbids the physician from disclosing what he learns in the sick room, no matter by what method he acquires his knowledge.—*The Journal of the American Medical Association.*

The True Sweetbread, regarded by gourmands as a great delicacy, is the thymus gland of the calf (*British Medical Journal*). As a rule, this is found only in the fetus and young calf, under the lower surface of the trachea, "partly without and partly within the chest, between the layers of the anterior mediastinum." It is occasionally persistent, but usually disappears within a few months after birth. It is elongated, of a grayish-white color, irregular—that is, lobulated on its surface, and much more resembling a salivary gland and the pancreas than the thyroid. It is commonly known among butchers as the "throatbread," and is rarely found except in young veal or lamb. The pancreas is vulgarly termed the "goodbread" or "belly sweetbread," and is the article which would be supplied in the great majority of cases by butchers asked for sweetbread. The thyroid is situated at the upper part of the neck, not at its root, and is not regarded as a favorite article of diet. Though the lobes are closer together than in man, they are spoken of as two, each being named a "kernel" or "gland." As far as we can learn, they are not ordinarily included among the sweetbreads. As compared with the thymus and pancreas, the thyroid is very small, regular on the surface, ovoid in shape, reddish brown in color, situated at the upper part and not at the root of the neck. The thyroid is sometimes confused by butchers with the lymphatic glands of the neck. Its dark color and characteristic shape—convex externally while somewhat concave and flattened where it rests against the trachea—should prevent this mistake. While thymus and pancreas are valued highly, the market value of the thyroid is inconsiderable, and until its association with myxedema it was rarely asked for.—*Exchange.*

"Life From The Cell."—At the recent meeting of the British Association for the Advancement of Science, the principal subject of discussion was the latest news about the great secret of life, and the address of the President, Prof. Burdon-Sanderson, was chiefly devoted to that topic. Says the correspondent of the *Sun:* "He deliberately destroys the work and conclusions of the investigators of the past few years. It has been asserted for some time that the mystery was on the eve of solution. The discovery of the cellular principle of all life led to the conclusion that the secret itself was about to be disclosed. Eminent biologists have asserted in recent years that a chemist would soon be able to compose the necessary parts and conditions of living things in the laboratory and create life. If successful, the mechanical theory of life would stand proven.

Prof. Sanderson dashes all our hopes. He says: "The process of lymphatic absorption, which before we regarded as dependent on purely mechanical causes, is in great measure due to the specific energy of cells, and in the various processes of secretion the principal part is not, as we were inclined not many years ago to believe, attributable to liquid diffusion, but to the same agency."

In other words, the phrase, 'the specific energy of cells,' takes the place of the mysterious 'vital principle' of the alchemist of the Middle Ages. While making this depressing confession, Prof. Sanderson does not discourage unflagging pursuit of the secrets of nature, although he does not hold out hope of the solution of her greatest mystery."—*N. Y. Med. Times.*

National Medical Societies of America.—Annual Meetings—1894. American Medical Association—San Francisco, Cal., June 5.

American Association of Genito Urinary Surgeons—Washington, D. C., May 29.

American Academy of Medicine—Jefferson, N. H., August 29 and 30.

Association of American Physicians—Washington, D. C., May 29, 30 and 31.

American Dermatological Association—Washington, D. C., May 22.

American Gynecological Society—Washington, D. C., May.

American Laryngological Association—Washington, D. C., May 29.

American Ophthalmological Society—Washington, D. C., May 29.

American Rhinological Association—Indianapolis, Ind., October.

The Medico-Legal Society—New York, December.

The Association of Military Snrgeons of the United States—Washington, May 1, 2 and 3.

Illinois Army and Navy Medical Association—Springfield, Ill., May.

The lowest rates and best routes to the above conventions call on or address B. & O. Railroad agents at any local office in the United States.

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, MAY 15th, 1894. No. 11.

Original Articles.

TUBERCULIN AS A DIAGNOSTIC AGENT, AND ITS VALUE TO THE HUMAN RACE.

By J. LINDSAY PORTEOUS, M. D., F. R. C. S. Ed.

For some time past the daily papers as well as medical journals have had numerous articles on the use of "Tuberculin" as a more certain means of diagnosticating tubercle in cows, and many cows both here and abroad have been killed on the strength of this test alone, and I believe nearly all, if not all, of those slaughtered have had tubercle to a greater or less extent as proved by autopsies. Within a few days a child died in this district from a tubercular disease. The physician in attendance, in looking for a cause, suggested that it might be found in the milk which the child largely partook of. Dr. Lamkin, an able and skillful veterinary surgeon, was consulted. He could detect no tuberculous conditions in any of the three cows he examined by the ordinary methods, whose milk the child had taken. He, however, tried the hypodermatic injection of "Tuberculin" as prepared in Koch's laboratory. The result was that two of the three cows gave the reaction which is considered certain proof of tuberculosis. The cows were killed and the autopsies proved beyond a doubt that tubercle was present in both.

I may here deviate a little from the strict order of these notes and explain the mode of procedure followed in the operation of testing the animals. A 1 per cent. solution of carbolic acid and distilled water is prepared. To nine parts of this, one part of tuberculin is added and the solution is ready for injection. Next to be done is to take the temperature of the cow four times in 24 hours. Then from 2 c. c. to 4½ c. c. (according to the strength or condition of the cow) is injected. Seven hours after the injection the temperature is again taken and repeated every three hours for 17 or 18 hours. The normal temperature of the cow varies, according to circumstances, from 101° F. to 102° F., or even 102½° F. If the temperature during the 24 hours succeeding the injection does not rise above the normal, the cow may under ordinary circumstances be declared free from tubercle. In using this test the greatest care must be exercised and only the thoroughly well educated veterinarian can with any degree of certainty pronounce the animal infected or not. He must remember that the normal temperature of the cow is nearly two degrees lower between twelve midnight and two o'clock in the morning; that the drinking of a quantity of water reduces the temperature about one and one-half degrees; that even "chewing the cud" raises it one degree or more; and that a bull has a temperature fully two degrees higher than a cow. So much for the part played by the veterinarian.

It is now universally admitted that tuberculosis is an infectious disease, but it has not been satisfactorily proved that it is not also an hereditary disease; although some advance the theory that it is a disease solely communicated by infection. The disease must start somewhere, and it matters little where, so long as we know from whence it comes and the means to prevent its spread. If we go back to the Middle Age we find that tuberculosis in animals was recognized as contagious, and laws were made to prevent the carcasses being used as human food. In the 16th century the disease was confounded with syphilis; and at the end of the 18th century with glanders, thus showing the strong belief that it was contagious (Law). In 1774 Ruhling in Germany and in 1787 Keunitz recorded the propagation of tubercle by contagion. This belief seemed to have died out to a great extent, as we can remember when it was not thought necessary to take any precautions against infection from it.

We will try to show that it is quite possible to infect both with meat and milk of tuberculous cows. We do not, however, hold meat and milk wholly responsible for tuberculosis in man, doubtless he gets it in greater part from his fellow-man, but the geographical distribution of the disease points very clearly to the fact that cattle are partly to blame for propagating tuberculosis. Statistics show that inhabitants of the islands on the West coast of Scotland, of Iceland and Newfoundland, where cows are few, are wonderfully free from consumption. Also in those countries where reindeer form the principle food of the natives, such as Finland, Sweeden, Northern Norway and Lapland, tuberculosis is almost unknown. In Algiers, where cattle are few and live out of doors away from cities, consumption does not increase. How far different in the case of those countries and cities where the cattle are numerous, and where their meat and milk form the staple food of man. Take, for instance, Hanover, where from 60 to 70 per cent. of cattle have tubercle, or Edinburgh, Scotland, where 26 per cent. are similarly affected. These statistics clearly show that the countries which have few cattle have few native consumptives. Law states that "in infected breeding and dairy herds in New York, consisting largely of mature cows, I have found a maximum of 98 per cent. and a minimum of 5 per cent." Dr. Biggs, of New York, tells us that in New York city every fifth death is from tuberculosis of the lungs, not to mention tubercle of the bowels and brain covering.

To Gerlach is due the honor of the discovery that the transmissibility of tubercle can take place through the digestive organs, and he decided that "the flesh of a tuberculous cow is infectious and is unfit for food, when there is decided disease of the lymphatic glands, when the tubercles are breaking up and becoming cheesy, and when tubercles are found on different parts of the body" (*Veterinary Journal*, Vol. v. 203, etc.) Virchow has decided that the human tubercle is not the same as that found in the ox. The discovery of the tubercle bacillus by Koch has revolutionized the diagnosis of tuberculous disease in man. And there is now no longer any doubt that at least one tuberculous disease is identical in man and ox, and cases are not wanting to prove that the disease has been transmitted from the cow to man. The miserable thin and diseased animals supplied to the Indian tribes are eaten in many cases raw, with the result that the Red man from being a strong healthy warrior is to the extent of 50 per cent. a puny consumptive.

So much for contagion by means of meat. But the most important cause of infection is certainly milk, as it, in many cases, is the only food the infant has to depend upon for sustenance. The question arises, does the milk of tuberculous cows infect when the udder is not the seat of tubercle? This is a most important question to the dairyman, as if it could be positively proved that there was no infection except when the udder was infected many cows would be saved. Nocard, M'Fadyean and Law have failed to produce tubercle in rabbits when the udder was healthy, although in some cases the cows were in the last stages of tuberculosis and in others in the acute stage. Bollingen, Nocard and M'Fadyean assert that if the udder is healthy the milk is harmless.

On the other hand Law, in an exhaustive

treatise on tuberculosis, in the 65th Bulletin of the Cornell University Agricultural Experiment Station, states that Hirschberger inoculated rabbits in the abdominal cavity with the milk of 29 tuberculous cows, of which the udders were or appeared sound, and produced tuberculosis 14 times. But this is hardly proof, as, in the first place, I understand it is very difficult to detect tubercle in the udder in its early stages, and secondly, a cow having tubercle in the lungs, may lick the udder and so leave germs on it, which may fall into the milk and so spread infection. It is reported that Nocard by injecting muscular juice of tuberculous cows infected 5 per cent. of those experimented upon. Law reports that infected milk when hypodermatically injected into guinea pigs and rabbits rapidly produced the disease in some, but others it did not affect. This is no more than takes place in human beings. Some take every infectious disease going, and others escape. To my mind it is still an open question whether milk from a cow with a sound udder and an udder thoroughly disinfected *outside*, before milking, does produce this dreadful scourge to the human race.

Ernst, Smith, Kilborne and others cite cases of cows producing infecting milk, without any *apparent* udder disease; still this is no proof. Milk of the cow undiluted, containing bacilli, has been demonstrated by Bollinger and Gebhardt to be more dangerous than milk which has been diluted with the milk of twenty, fifty or a hundred healthy cows. This may be a solace to the poor persecuted milkman, who has been punished for diluting his milk. We may ask the question, how is it that two persons or animals fed at the same time with the same milk are not always similarly affected? The answer is simple enough. The bacillus tuberculosis can only live in an alkaline or neutral medium. Acid of any kind will destroy it. If the individual has good strong digestive powers and throws out plenty of gastric acids, the infected material, be it meat or milk, will probably be rendered harmless. On the other hand, if the stomach-liquids are neutral or only slightly acid, from a condition of weak digestion, the infected material will pass out of the stomach without being acted upon by the acids, or if taken when the stomach is resting between meals, and consequently the liquids alkaline or nearly so, or taken when the stomach is already full, it will enter the intestine in full vigor, there to be absorbed and circulated, or settle on some ulcerated condition of the bowels, and ultimately form a well developed case of tabes mesenterica. From these remarks we learn that the healthy gastric juices destroy the vitality of the bacillus.

Does tuberculin when injected hypodermatically tend to spread disease in the healthy cow? In answer to this question Mr. Geo. G. Ramband, superintendent of the Biological and Vaccinal Institute of New York, writes to me that tuberculin cannot infect the cows into which it has been injected, as it has been thoroughly sterilized or filtrated. We do not know exactly how it acts, but it seems to increase the inflammation of the parts in contact with the bacilli, which may account for the elevation of the temperature, but this is only hypothetical. We know that dead tubercle bacilli are markedly chemotactic and capable of causing local suppuration and abscess.

It is now well known, that Koch's Lymph contains no live germs, but *the chief* poisons which are produced in the tuberculous body. It is a chemical poison manufactured, so to speak, by the bacillus. It has the power to produce a more active process of cell growth, which in time leads to degeneration and death of the tubercle; and if this tubercle is on the surface, where it can slough off and leave a healthy tissue, all goes well; but unfortunately there are tubercles too deep to slough off and to get rid of, and the tuberculin only aggravates them, causing rapid disintegration and consequent increase of bacilli which infect new material, and so on until death occurs.

In conclusion, we advise that no meat of tuberculous cows should be eaten, even when cooked. That blood which is inimical to this bacillus, as to most microbes, is not free from danger, and consequently raw beef juice should not be given to infants. That milk should not be partaken of largely unless sterilized.

That, to prevent further spread of the disease, seeing that there is ample proof that it is propagated through the cow to a very alarming extent, the Federal Government should enact laws sufficiently powerful to stamp out this scourge as far as its transmission to mankind by means of cattle is concerned.

That the most satisfactory way to do this, is to appoint qualified veterinarians to apply the tuberculin test to all cows at least once in three months, and immediately destroy those showing the recognized reaction.

Note.—Since writing the above a case has been brought to my notice which still proves the great usefulness of tuberculin as a diagnostic agent. A veterinay surgeon was called to see a cow. It showed marked symptoms of pulmonary consumption, high temperature, etc. She had been falling off for a year, and it was decided to kill her. The tuberculin test was carefully applied, but to the astonishment of the veterinary surgeon, there was no reaction.

The cow was killed, but no tubercle was formed. There were, however, adhesions and signs of pneumonia, and some liver trouble. This is important to prove that although all the old modes of examining for tubercle pointed to tubercle, the tuberculin test was correct.

Yonkers, N. Y.

Do not Kiss the Baby.—The dangers of kissing have of late received no little professional attention. The *Medical Press*, in an article on medical Japan, says there anent:

"The Japanese mother, as by instinct, never kisses her child on the lips," owing to the knowledge that the kiss may become the carrier of tuberculosis and syphilis. The whole practice of kissing, saving in the sexual act, is altogether unknown in Japan.—*Ex.*

RESEARCHES IN DIPHTHERIA.

By W. W. Myers, A. M., M. D.

In the experiment of inoculating nine cases of diphtheria with a culture of the microbe of erysipelas grown on agar-agar, seven cases made a good recovery. Two cases terminated fatally, and in these the inoculations produced no effect whatever. These negative results only tend to confirm the efficacy of the curative inoculations.

It is remarkable that in all cases where erysipelas was produced artificially this disease pursued a mild course, and the patients recovered rapidly from both diseases.

Diphtheria, we know, is a disease in which there seems to be good reason for believing that the different degrees of virulence are due to circumstances relating to the genealogy of the infecting organism, as well as to the resisting power of the infected individual; and that, as in anthrax and in fowl cholera, physiological varieties of the pathogenic micrococcus, to which this disease is probably due, may be developed by special conditions relating to its environment, either in the fauces of an infected individual, or external to the human body.

It is not alone by invading the blood or tissues that bacteria exhibit pathogenic power. Chemical products evolved during their vital activity, external to the body, or in abscesses and suppurating wounds, or in the alimentary canal, are absorbed and exercise an injurious effect upon the animal economy.

When in inflammation of a mucous membrane, the products of inflammation appearing on the surface form fibrin, and thus become a membrane clinging to the surface, which after a time dissolves into mucus and pus, we term it a *croupous* inflammation; the mucous membrane and its epithelium meantime remain intact while the parts are perfectly restored.

Diphtheria is exactly similar, but the

fibrinous layer is not attached more firmly to the tissue, but the serum permeating the substance of the membrane coagulates, the circulation is thus impaired so much that occasionally the affected part becomes entirely gangrenous.

The mucous membrane itself is affected as well as the epithelial surface, but the false membrane is not *altered* mucous membrane, for in none of the many fragments of false membrane which I have examined have I found any structures such as capillaries, nerve fibres and aveolar tissue which enter into the formation of mucous membrane.

Philadelphia, Pa.

*AN OBSERVATION OF EFFECTS OF ERYSIPELAS ON EPITHELIAL CANCER.**

By James Collins, M. D.

About eighteen months ago my attention was called by Mr. M. to an ulcer nearly opposite the ear, on his right cheek. This ulcer was one and a half inches in longest diameter, one inch in the shorter, presenting an oval with irregular edges. The discharge was slightly purulent, tinged with blood. The granulations were soft and bled on the slightest touch.

Mr. M. stated that twenty years ago there appeared at this point a small elevation, which frequently formed a scab, which every ten or twelve days would fall off and then re-form, giving but little trouble received but little treatment.

Nineteen years ago he was treated for a time with ointments and lotions, also some medicine was administered without special benefit. He was then assured that this was skin cancer and incurable. This ulcer gradually increased in size and depth. Some benefit was derived from a lotion of zinc sulphate and salt, dissolved in water to make a mild astringent solution. The ulceration, however, continued giving inconsiderable pain, but much annoyance by its presence. The good man quietly accepted the situation, seeking only palliation and relief from pain.

About November 12th he suffered from an attack of erysipelas of the face. This ran no unusual course, spreading rapidly from tip of nose over scalp to nape of neck. The efflorescence was followed by desquamation. The external dressing was of ichthyol and lanolin, which seemed to give relief and comfort.

As the erysipelas faded out, the desquamations following the ulcer seemed to assume a more healthy appearance. Granulations of a more normal character developed, and in about two weeks the ulcer was entirely healed. The cicatrix on March 1st is slightly indurated, but smooth and firm, presenting the appearance of normal cicatricial tissue.

This case is reported without special comment. Dr. Coley, of New York, has written on this subject with considerable interest.

The writer is well aware that a single case from the practice of a surgeon is but of little value, isolated and alone, but in the hope that others may add their experience and observation the case is reported for consideration.

704 Franklin Street, Philadelphia.

Discussion.

Dr. John B. Deaver: Dr. Collins' report is of great interest. I now have a patient with osteo-sarcoma to whom I have given the erysipelas toxine, but it seem to have no effect. Drs. Bull and Colly tell me that it has proved of no value in such cases. Further, they have practically discarded it in carcinoma.

Dr. H. R. Wharton: I have had no personal experience in the treatment of carcinoma or sarcoma with the virus of erysipelas. I have under observation a patient with inoperable carcinoma of the face who consulted Dr. Bull, and he advised that this treatment be not tried. The results in carcinoma have not proved satisfactory, I understand from Dr. Bull, but think he considers the prospect more promising in cases of sarcoma.

Dr. Orville Horwitz: I have had three cases—two of sarcoma and one of carcinoma, and in one case of sarcoma there was no benefit. In the third case the mass involving the side of the neck has become much softened, and it looks as though some improvement were taking place.

---

* Read before the Philadelphia Academy of Surgery, March 5, 1894.

Dr. Penrose: My experience is limited to one case of inoperable carcinoma of the right superior maxillary which had existed some two year. Three or four operations had been done, but the disease had finally gotten beyond bounds. Last spring this woman accidentally acquired erysipelas, and had one of the worst attacks that I have seen, but it had no effect on the neoplasm. The progress of the growth has been the same as before. The beneficial effect of this anti-toxine is limited almost exclusively to the softer forms of sarcoma—to sarcoma of the soft parts.

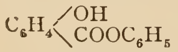
SALACETOL.

By Prof. Dr. Bourget, and Assistant Dr. L. Barbey, of Lausanne.

Original Translation for this Journal by request; the German text published in the *Therapeutische Monatshefte.*

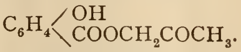
Under the name "Salacetol" chemistry has recently enriched materia medica with a new salicylic acid derivative. This product offers all the advantages of salol, and is free from the untoward side-effects due to its phenol constituent.

While in salol the salicylic acid is combined with phenol, this component has been replaced by acetol in salacetol:



$C_6H_4\left\langle\begin{array}{l}OH\\COOC_6H_5\end{array}\right.$

Salol.



$C_6H_4\left\langle\begin{array}{l}OH\\COOCH_2COCH_3\end{array}\right.$.

Salacetol.

Salacetol is produced by heating together mono-chlor-aceton and sodium salicylate. It crystallizes from alcohol or ligroin in scales or fine glistening needles. It is almost insoluble in cold or hot water, but is readily dissolved in hot alcohol, ether, carbon bisulphide, chloroform, benzol, ligroin, etc.

The melting point of salacetol is 71° C. (159.8° F.). It has a somewhat bitter taste. Through shaking with an alkaline solution, for instance 0.6 per cent. caustic soda, it is dissolved with saponification, *i. e.*, it resolves itself into its components.

The same characteristic attaches to salol, and this property of disintegrating in alkaline media is utilized in intestinal infection. The contents of the intestine become alkaline on entry through the action of the pancreatic juice, the bile, and the intestinal juice; salol undergoes the saponifying process and resolves into salicylic acid and phenol, the former body quickly changing to an alkaline salicylate (sodium or potassium), which on general belief possess no antiseptic properties. But the thought is near, that while the salicylic acid when separated acts only briefly, it exerts its full effect during the nascent state—which, as is well known, considerably augments the chemical action of a body. So far as the phenol is concerned, it undergoes a change which makes it innocuous. It is astounding what an amount of phenol an individual can stand without evil result if combined with salicylic acid, *i. e.*, if taken in the salol form.

Phenol itself is rather toxic; even doses of 0.5 gm. in adults, and much smaller doses in children, will produce serious results. And yet daily doses of 8 to 10 gm. salol—equivalent to 3 to 4 gm. pure phenol—can be taken for a considerable period without evil effect. The immunity from poisoning is due to the fact that the phenol is rapidly changed by the liver—and possibly by the mucous membrane of the intestine—to sodium or potassium sulfocarbolate, compounds which are very soluble, readily eliminated and non-toxic. Thus the organism casts out the harmful products which are formed in the intestine by the decomposition of albuminoids by microörganisms. The decomposition products are generally toxic (phenol, scatol, indol, etc.), but through the combination with alkaline sulphates they become innocuous and are easily eliminated through the urine.

For this reason, a sufficient amount of alkaline sulphates must be present where such combinations are formed; if not, the absorbed and unchanged phenol will produce the toxic effect. This may be seen in phenol poisonings; where immediate administering of a good dose of sodium sulphate will inhibit the dangerous phenol effect.

One of us had the opportunity recently to observe a patient who, through the carelessness of a nurse, had swallowed a glassful of phenol solution containing about 8 gm. phenol. The victim in this case soon showed alarming symptoms; partial unconsciousness ensued, and the skin became cold. A dose of 20 gm. sodium sulphate sufficed to reduce the threatening symptoms, and after six hours the patient had so far recovered as to complain only of headache.

When salol causes toxic symptoms, it must be assumed that the organism has not succeeded in changing all the liberated phenol into alkaline sulpho-carbolate; and therefore a certain amount of sodium sulphate should always be given in conjunction with it.

From salacetol no fear of intoxication need be entertained. On entering the alkaline intestine this product splits up into salicylic acid—which acts as above described, and acetol—which is rapidly eliminated in the form of aceton, or is completely oxidized into its elements, without affecting the organism, and without taxing the liver with a performance which when excessive may irritate or strain it. Because of these properties salacetol may advantageously replace salol.

Resorption.—In passing through the stomach, salacetol undergoes very little change; on entering the intestine it splits up when the intestinal fluid is sufficiently alkaline, and at this moment the resorption of the salicylic acid is very rapid. Within a quarter of an hour after ingestion of 1 gm. salacetol traces of salicylic acid will appear in the urine. To substantiate this presence it is requisite to shake the urine, acidulated with muriatic acid, with 20 to 30 cc. of ether; the latter is separated and evaporated off; the residue dissolved in water will give a beautiful violet reaction with iron chloride. A half hour after the resorption of the same dose of salacetol the proportion of salicylic acid present in the urine is sufficient to allow of a strong reaction direct on addition of a few drops of iron chloride.

By combining salacetol with castor oil the elimination through the urine is facilitated. It is probable that, owing to the slightly irritant effect of the castor oil, the various digestive juices (pancreatic, biliary, etc.) are secreted in increased amount, and that the resolution of salacetol is thereby energetically stimulated. The resorption is also promoted by the increased peristaltic movements. Thus, after administering 2 gm. salacetol in powder form we found 0.473 gm. salicylic acid accumulated in the urine during the next 24 hours; while the same dose dissolved in 30 gm. castor oil yielded 0.723 gm. salicylic acid. It may be noted incidentally, that salacetol in the proportion of 1 to 8, or 1 to 6, has the property of solidifying castor oil, by heating the mixture and allowing to cool again.

The condition of stomach dilatation does not apparently retard the resorption of salacetol; the rapidity of this resorption depends on the more or less alkaline condition of the intestinal fluid. For instance, it will be delayed if a considerable amount of the acid gastric juice is emptied into the intestine simultaneously with the salacetol; in such case the intestinal secretions must first neutralize the gastric juice before they can act on the salacetol.

The *Elimination* of salacetol is quickly accomplished. It takes only 24 to 36 hours to completely eliminate 2 gm. of the substance.

The absorption through the skin depends on the vehicle. Inunctions with a salve of salacetol and vaseline (1 to 10) will not produce the effect; repeated applications may be made without carrying the salicylic acid into the urine. But with lard it penetrates promptly, and the urine will hold salicylic acid within 3½ to 4 hours after the application. By slightly heating a mixture of salacetol and lard and adding 10 percent. oil turpentine, the salacetol will dissolve in the fatty substance, and on cooling this salve will markedly promote absorption of the salacetol.

The same result is achieved by dissolving salacetol in chloroform and incorporating this solution with a mixture of lard and a little lanolin.

Thus it is demonstrated that the absorption of salacetol through the skin is much less energetic than of salicylic acid under like conditions.

Therapeutic application.—Salacetol is indicated in the treatment of intestinal infection. We are convinced that it is one of the best and safest disinfectants for the digestive canal. In *choleraic diarrheas* we achieved most excellent successes with it. For adults we usually prescribe 2 to 3 gm. salacetol in 20 to 30 gm. castor oil during the first two days; if the diarrhea persists we repeat the dosage another day, and after that continue with 2 or 3 gm. salacetol alone per day. Small children receive as many decigrams as they number in years.

The disinfection of the intestine is complete on the third day. We proved this by determining the preformed and the combined sulfuric acid in the urine. It is well known that the proportion of same is considerably increased as the intestine becomes the seat of intense microörganic infection. The reason for this has been explained above.

In cases of *acute* and *chronic articular rheumatism* salacetol also yielded excellent service. For internal treatment we use this remedy exclusively now.

In acute rheumatism the first effect of a 2 gm. dose of salacetol is to reduce the temperature and alleviate pain. Usually this result is accomplished within 2 or 3 hours. By repeating the dose two or three times daily the temperature reduction is maintained.

In the majority of our cases the patients became convalescent on the fourth or fifth day, after having taken 4, 6 or 8 gm. salacetol per day.

At present we are following a double treatment method; *i. e.*, this salve:

Acid. salicylic.
Olei Terebinth.
Lanolin... ....āā 10.0
Axung.......... ....100.0

is applied to the diseased joints, and 1 gm. salacetol is administered additionally night and morning. This treatment has furnished most excellent results, as already reported (*Therap. Monatshefte*, Nov. 1893).

In no instance have toxic symptoms, not even from very large doses of salacetol, been observed.

Muscular and *chronic rheumatism* has been considerably improved with salacetol.

The action of this remedy in cholelithiasis (gall-stone formation) deserves mention. We have a record of several cases in which salacetol in castor oil solution has acted very favorably. We withhold publication of details until more material is available. In these cases we gave daily 2 gm. salacetol in almond oil, or—especially during winter—in cod-liver oil.

We have arrived at the conclusion that salacetol can be advantageously used in place of all other salicylic acid compounds, and that its use may be especially recommended in pediatric practice.

PARAFORM.—M. Aronsohn thus designates polymerized formic aldehyde, a substance recommended for use in the intestinal tube as an antiseptic. It is a white crystalline substance, insoluble in water, and Aronsohn claims that of the antiseptics compared with it—β-naphthol, iodoform, dermatol, salol, and benzonaphthol—the first named is the only other substance that at all completely checks the development of bacteria. Paraform, however, is superior to β-naphthol, a $^1/_{60000}$ solution acting upon typhoid bacilli as effectually as a $^1/_{3000}$ solution of the latter. Again, 0.05 gm. of paraform sterilized 200 gm. of urine, while 0.15 gm. of β-naphthol was required for the same purpose. A dose of 5 gm. of paraform did not produce any ill effects when taken, and its physiological action resembles that of calomel (*Sem. Med., Pharm. Journ.*)—*Amer. Druggist.*

THE TREATMENT OF DIARRHEAL DISEASES.

By John Aulde, M.D., Philadelphia.

A paper read at the Forty-fourth Annual Session of the Medical Society of the State of Pennsylvania, May 15 to 18, 1894.

The object of the present paper is to direct the attention of the profession to certain cardinal principles which should guide them in the treatment of diarrheal diseases, principles which apply not only to the treatment of this class of disorders but to all classes of disease which afflict humanity. The diverse views now entertained in regard to the treatment, some of them diametrically opposed to each other, make it important that a line should be drawn for the purpose of determining the methods which are in harmony with scientific investigation and those which are purely empirical in character. Four years have now elapsed since I presented to this society the results of a collective investigation covering the use of copper arsenite in the treatment of various intestinal affections, and, judging from the numerous favorable reports which have appeared concerning the value of this remedy, it is safe to conclude that it has been the means of accomplishing much good in relieving large numbers of patients thus afflicted. It is foreign to the present purpose, however, to consider in detail the use of particular remedies, and the same is true in regard to the dietetic and hygienic management, because the members of this society are doubtless convinced of the need for exercising proper caution in the selection of food and securing for their patients all the advantages which issue from pure air and appropriate clothing.

As a preliminary to my remarks, it may be stated that the treatment of diarrheal diseases occupies a wide range, the limit on the one side being the liberal exhibition of opiates in some form, while on the other side, we have those who insist upon the free use of salines. Occupying a sort of middle ground, there are a large number of practitioners who resist the temptation to go to either extreme, believing that the best results are attained from the judicious employment of remedies which are supposed to enact the role of antiseptics in the different portions of the alimentary tract. Purgatives are cautiously used; washing out the stomach is commended; and the frequent use of enemata is strongly advocated. The etiological relation of micro-organisms to all forms of diarrheal affections is still unsettled, as will readily be admitted when we consider the almost infinite number of causes which are responsible for the appearance of these attacks. For example, an overloaded stomach may be, and frequently is, the prime cause for setting up a mild attack, especially in the case of infants. The same is true as to the effect of long continued or habitual constipation; and, no doubt, atmospheric influences are often responsible for their occurrence. There is no longer any doubt as to the use of unsuitable food and impure water being frequent exciting causes; but there is still an important question behind all this, and in the opinion of the writer, the most important factor in the causation of this and other forms of disease is still an unrecognized factor, a factor which is well worthy our most earnest consideration.

Those who advocate the use of salines tell us that they are simply assisting Nature in doing certain work which, unaided, she is unable to accomplish. On the other hand, the argument advanced in favor of opiates is to the effect that they allay the irritability of the nervous system, thereby allowing Nature to do her proper work unimpeded. Physicians who uphold the employment of antiseptics claim that they are able to accomplish good results by reason of the fact that these remedies destroy or render innocuous the poisons which are constantly present in the alimentary tract. They too frequently overlook the fact that these antiseptics, taken into the blood, may do serious harm to the nervous system, and also, that they may seriously impede the organs concerned in the elimination of poisons. Others who believe in lavage and enteroclysis teach that by these means much offensive material is removed from the body, and that the system is thus put in the most favorable condition to arrest the progress of the disease.

Now, from a cursory consideration of these various views, it is evident that all of them have value in certain directions, and that all are advocated on plausible grounds; but, unfortunately, the mortality rates are not materially reduced.

The principles to which I wish to direct attention are those first put forward by Professor Vaughan, of the University of Michigan, in a paper read before the Pan-American Medical Congress, held at Washington last September. It was he who first demonstrated the true scientific basis of Professor Metschnikoff's phagocytosis, by showing that it was the function of the white blood-corpuscles to secrete or manufacture an antiseptic substance, a substance which gives to the blood its "*natural antiseptic*" properties, and prevents decomposition of that fluid. He began by first extracting from yeast-cells a substance which he proved to possess antiseptic properties of a high order. Then he took the yelk of an egg, and from the nucleus of that extracted a similar substance which likewise possessed powerful antiseptic properties. Then acting upon the suggestion furnished by the work of two Frenchmen in attempting to extract an antiseptic substance from the white blood-corpuscles found in pus, he proceeded to extract an antiseptic from these bodies while in a state of health, believing that when found as an accompaniment of pus their valuable properties must be lost or seriously impaired. He then reasoned that if the white corpuscles, while in a state of health, were able to give a product which would arrest the multiplication of micro-organisms, it was not unlikely that the bone-marrow, the spleen, the thyroid and thymus glands, all of which are supposed to be intimately connected with the development of these cells, might also possess these properties in a perceptible degree. As a further step in his demonstrations, he determined to inoculate animals with tuberculous sputum solutions and use these antiseptic substances for the purpose of preventing the development of tuberculosis, and at every step he was rewarded with success. These substances he has designated nucleins, for want of a better name, and they are described as phosphorized proteids. They are probably the "defensive proteids" which have so long been assumed to exist in the human economy.

These phosphorized proteids are known to exist in blood serum, and it is probably for this reason that Nature in attempting to get rid of impurities and poisons in the alimentary canal, pours out such an abundance during the progress in chronic catarrh. In this view of the matter, it is easy to understand why salines will be of service at one time, and opiates more successful at another; but there comes a time in the diseases of children when it is neither wise nor expedient to give either of these remedies, and it is then that we must go behind the superficial symptoms in order to understand the true conditions which are present, and which must be regulated.

When the blood is disorganized by the presence of poisons, whatsoever they be, when the nervous system no longer responds to irritants, and anodynes only speed the way to the grave, and when diffusible stimulants are of but temporary advantage, it will be of advantage to consider more carefully the methods of dame Nature. Mechanical treatment is a failure when it is no longer possible to tighten up the machinery to make it perform the usual functions; antiseptic treatment is a failure when absorption is arrested; and stimulants are of no avail when the tide of life begins to ebb. If, however, by some occult process we could stimulate cellular activity, increase or augment the functions of the leucocytes, thus re-establishing an energetic leucocytosis, these small bodies would promptly find their way into every recess of every organ and tissue of the body, with the effect of changing almost instantly the whole morbid complexus. In other words, were we able to supply the system with an artificial phosphorized proteid, a nuclein, victory would be the reward instead of defeat, and we should be able to effect not only an amelioration in sickness, but we should also be enabled thereby to reduce mortality to a minimum in diarrheal as well as in other diseases.

From a somewhat limited experience with nucleins prepared for me by a thoroughly competent chemist, in accordance with the directions given in Professor Vaughan's paper, I am prepared to assert that in this phosphorized proteid we have one of the most promising remedies that has ever been offered to the medical profession in the history of its existence, and I bespeak for his investigations your most careful consideration. As an evidence for its distinct therapeutic value, it is only necessary to study the effects of medication upon the blood. To-day, the corpuscles are found broken, of various sizes, irregular and crenated and sluggish in their movements; to-morrow, they are round, smooth, healthy in appearance, and move about the field with a velocity that is most surprising. This may be referred to as the scientific demonstration; the clinical demonstration is to be seen in the marked change which occurs in the patient. The shadow of death is changed into sunshine of life; the various functions are re-established; nervous energy is restored through increased cellular activity, and a fatal termination averted.

In conclusion then, let me state that this is by no means a fancy sketch which I have prepared for your delectation, but a true record of the clinical facts as they have come to me, and as they will come to you in the course of your efforts to conquer disease. In this connection, however, I must warn you that this remedy does not take the place of other means and measures for the proper protection of the patient, as in order to be successful, it is necessary that every known precaution should be adopted with a view to place the patient in the most favorable condition possible, both from a dietetic and hygienic standpoint, and that the usual medicinal measures must be followed if we expect to attain success.

CLINICAL REPORTS ON THE USE OF NUCLEIN SOLUTIONS.

By John Aulde, M. D.

The following clinical reports relating to the use of nuclein solutions in the treatment of various diseases have been received from physicians to whom samples were sent, on their request, with the understanding that reports were to be made of the effects of treatment. In connection with the samples a personal letter was sent to a large number of physicians asking that careful observations be made of the temperature and pulse-rate; also that the effects of medication be noted in respect to the bowels, the skin, the kidneys and the pulmonary apparatus. The suggestion was also made that where the physician had the facilities, a microscopical examination of the blood be made from time to time, since the effect of the remedy upon both the red and white corpuscles is, in certain diseases, notably malaria and anemia, something remarkable. It should be stated that these reports are nearly all of a preliminary character, and that both those who have already reported and others who are continuing their observations will probably have more elaborate and interesting reports to make of their work in the near future.

Rheumatoid Arthritis.—Dr. T. E. Griffiths, of Frankfort, Ohio, writes as follows:

"From a practice of twenty-five years, I can fully endorse your articles in the *New York Medical Journal* some two years ago. I also believe in using single remedies as far as possible, and think it the more satisfactory way of prescribing.

"I have a very interesting case on hand, that of a patient with a rheumatic diathesis. The joints are swollen and he cannot move hand or foot, although there is no pain except when moved. Pulse, temperature, appetite, kidneys and respiration normal. I have used aconite, rhus toxicodendron, bryonia alba and apocynum to advantage."

A supply of the tablets was sent with instructions to give one tablet every two or three hours, and to have the affected joints well rubbed with a liniment composed of equal parts of oil of wintergreen and soap liniment, a request being made that a report be sent at the end of a week or ten days after beginning treatment. At the expiration of one week, Dr. Griffiths writes as follows: "Patient rests much better; urine more free, temperature normal, and the stools lighter in color. The change as I see it now, is in the rest, urine and the character of the stools."

Uterine Hyperplasia.—Professor W. C. Caldwell, of Chicago, writes as follows: "Soon after receiving the tablets, I gave them to a woman with uterine hyperplasia, who was also suffering from various reflex nervous symptoms. She tells me the tablets did her more good than any medicine I had given her. Gave one tablet three times daily. In my forthcoming book I will devote considerable space to the action of drugs in the infectious diseases, to toxines, anti-toxines and animal substances, including nuclein."

A week later, Dr. Caldwell writes as follows: "Please send me some more nuclein tablets. The patient I gave them to is very restless and disappointed because I have none for her at present."

Sciatica.—Dr. E. B. Sangree, of Philadelphia, sends the following report: "I take much pleasure in enclosing a letter received this evening. I divided the nuclein tablets sent me into three portions. From two of the patients I have not yet heard. This portion, fifteen in number, was given to a heavy woman of some sixty-five years of age, who had not only suffered from severe rheumatism of the right knee for the past two months, but within the last few days had a very severe attack of sciatica. I fairly despaired of doing her any good, as the rheumatic diathesis dates back many years, and I had already pretty well exhausted my armamentarium."

The letter referred to is as follows:

"Dr. Sangree: Mother desires me to say to you that she has taken *all* her medicine, which has acted like a charm. The sciatic trouble has entirely left her, and she is in every particular much better."

Influenzal Debility and Anemia.—Dr. J. Wellington Byers, of Charlotte, North Carolina, in the course of two short communications, makes the following report:

"The tablets I have used so far have proven very effectual. The case of influenzal debility is better than she has been for two years, and the other with anemia is also progressing hopefully."

Later he says, "I am still delighted with their effects. In chronic malaria they appear to best advantage so far. I am trying them in all forms of disorders, and they seem to do good in each, although the results vary in degree.

"I think leucocytosis defective in tuberculosis, and am trying to ascertain the effect of nuclein in a case. I do not limit its sphere of action, and the more I think of the matter, the more I am inclined to believe that you have found out something of vast importance. I have re-read all you have had to say in the journal and everything else bearing upon the subject that I can find, and am more sanguine the farther I go."

Chronic Malaria.—Dr. W. A. N. Dorland, of Philadelphia, contributes the following brief note in relation to one of his patients suffering from chronic malaria: "My patient in Washington is doing admirably on the nuclein. Will advise you of further developments."

General Debility.—A Chicago physician, who has been testing the virtues of nuclein solution *in propria persona,* and would perhaps not care to have his name mentioned, contributes the following interesting report:

"I feel under thankful obligation to inform you of the benefit I have received from the nuclein tablets you so kindly sent me April 13, 1894. I have suffered severely from lung fever, assuming a pneumonic form in the sequel, and attended with but little bronchial secretion and expectoration, but with extreme dyspnea. That disability lasted me during the first nine months of my residence here, weakening my whole physical economy. One year ago, the fifth of this month, was marked by a typical bronchial catarrh, the most severe I ever saw. It was attended with the most difficult respiration throughout all its stages, lasting for the period of one month. From this attack and the prevalence of the disease above mentioned, I became very much reduced and prostrated physically, and came to the conclusion before addressing you last, that I had lost and was constantly losing red corpuscles—from the presence in my own person of the peculiar symptoms, characteristic of that disability or disease, if it may be so termed.

"Well, after receiving the nuclein tablets, although greatly improved, I determined to try the tablets in my own case. Accordingly, I have done so, and have just taken the *last one,* and must say—whether it be a lively imagination or no, I cannot say—I never experienced so much vitality, strength and vigor throughout my whole system as I have attained since using the tablets. My countenance has assumed a redness unusual to it, as is also the case with the mucous membranes of the buccal cavity. There is a general sense of power hitherto unknown for some time past, all of which I attribute to the use of the tablets. If such proves to be the effect, and results from the exhibition of the remedy to others, my conclusions will be positive."

Tubercular Synovitis.—From a physician in Wisconsin, who has been taking the remedy himself, the following suggestive report has been received:

"My condition at the time of beginning to take the tablets was as follows: Chronic synovitis of the right knee-joint with a good deal of sympathetic trouble in left leg, muscles and joints. From long confinement, local and general nutrition poor; appetite poor, bowels irregular, urine showing quite a heavy deposit of urates on standing. A record of the pulse and temperature was kept each day, and is as follows:

"March 23, 11 a. m., pulse 74; temperature 99.1. Urine, sp. gr. 1.018, slightly alkaline with a heavy deposit of urates on standing; no albumin or sugar. March 24, 6 p. m., pulse 70, temperature 99.1. March 25, 9 a. m., pulse 76, temperature 99. March 26, 6 p. m., pulse 70, temperature 99.2. March 27, 6 p. m., pulse 72, temperature 99. March 28, 6 p. m., pulse 72, temperature 99.5.

"On April 3d, the tablets were exhausted. Appetite better, bowels more regular; urine perfectly clear, with no deposit of urates. In better feeling and spirits every way, although no particular effect has been noticed in the knee-joint nor upon the pulmonary apparatus; but on the face, scalp and shoulders there was quite a profuse crop of acne thrown out, which at this date is nearly well. Dose taken, one tablet every four hours. I am satisfied there is virtue in the remedy, but of course, in a chronic case like mine it would necessarily take some time to prove its value. I am anxious to know what it will do in acute cases."

Tuberculosis.—The following report is from a physician in Iowa, whose preliminary statement of the conditions present prompted the writer to suggest that it was a case of tuberculosis instead of simple anemia, and an examination of the sputum showed that the diagnosis was correct. The patient is a girl, aged 16, and had been under treatment for a period of six months with but slight improvement. The initial treatment with the nuclein solution produced considerable improvement. The record is as follows:

"Commenced giving my patient, referred to before, nuclein on the 13th of April in the afternoon—one tablet at 5 and 7 o'clock; pulse at 5 o'clock was 102, temperature 102. April 14th.: nuclein 1 tablet every 3 hours; took four tablets. At 5 p.m., pulse 96, temperature 101.6. April 15th, continued nuclein every 3 hours. At 5 p.m., pulse 96; temperature 102; bowels regular; urine natural in appearance and quantity normal; skin soft. Patient has an annoying cough. Night of 14th, gave her a pellet of cicutine at 5 and 8 o'clock without effect.

"The suggestion in regard to tuberculosis noted. I suspected tubercular infection from the first, and made repeated examinations, but always failed to find any physical signs to confirm my suspicions, except the rapid pulse and high temperature. The cough has not been of a suspicious character until of late. I would have reported before, but waited until the question of tuberculosis was decided. It is now decided. Yesterday I took some of the sputum for examination, and found tubercle bacilli in great abundance. No doubt milliary tubercles.

History in brief. — On father's side, grand father scrofulous; still living, age 76. Grand mother, chronic bronchitis; living at age of 75. Father not strong; shows scrofulous diathesis; has hemorrhoids and is thin in flesh.

On mother's side, grandfather had hemoptisis; died at 46; don't know ailment. Grandmother living, about 70, in very fair health. Mother living and in very good health; had large polypus tumor of uterus, which I removed about 12 years ago. Patient shows scrofulous diathesis; a small hemorrhoidal tumor of recent origin. Was an ordinary healthy child. Has a fair appetite, and made a very good, uninterrupted growth; a good sleeper. Commenced menstruating at 14; never regular, rather scanty, but no other trouble. Since last summer irregularity increased. April 2 (inst.) she menstruated last, and the most natural she ever had, except possing a clot. Over a year ago she fell from sidewalk; left side struck a billet of wood and broke floating rib off at junction of cartilage; not discovered by attending physician. I was called in last September and found the break, bandaged it and it united, leaving some depression. Had pain in side and back, and coughed considerable ever since the injury. Cough subsided with pain about middle of December. She attended school during the whole time to April 9th.

Temperature and pulse rate as follows: April 9th, 5 p. m., 102.2 to 103.2;—13th, 5 p. m., 102 to 102.1;—14th, 5 p. m., 96 to 101.6;—15th, 5 p. m., 96 to 102;—16th, 5 p. m., 96 to 101.8;—17th, 5 p. m., 98 to 101.6;—18th, 5 p. m., 94 to 102;—19th, 5 p. m., 92 to 102;—20th, 5 p. m., 100 to 102.6;—same date, *9 a. m., 90 to 99.6;* —21st, 9 a. m., 92 to 98.2; 5 p. m., 96 to 102.6;—22nd, 5 p. m.. 98 to 101;—23rd, 7 p. m., 102 to 102.4;—24th, 10 a. m., 90 to 98.2. Appetite a little better, sleeps well and feels better; not so languid in the morning. Lives in the village in good house; very healthy country, about 20 miles west of Mississippi river; altitude about 700 feet; ground high and rolling. Personal habits good.

Euchlorin belongs in the category of proprietary compounds with which enterprising promoters attempt to "take in" the medical profession, and later a gullible public. It is recommended as a "new remedy"; the name is trade-marked; in reality it is simply a solution of 1 or 2 grammes chlorate of potassium in 240 grammes of water and 10 drops muriatic acid, to be used (according to the *British Medical Journal!*) as a gargle or spray in diphtheria. We have too many of these ephemeral products, and it is surprising to see this English journal recommend one of the class.

Recent Medicaments.

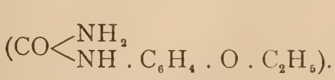
Para-chloralose, a side-product in the manufacture of chloralose, has been condemned as devoid of hypnotic effect by Hanriot and Richet (the sponsors for chloralose), as also by Heffter (*Pharm. Centralh.*, 35, 113); Mosso, on the other hand, endorses it as valuable. It occurs in white, glistening scales; only slightly soluble in hot water, but readily dissolved in alcohol; and melting at 227 to 229° C.

Solphinol, a new antiseptic introduced from France, is a mixture of borax, boric acid and sulphurous alkalies. It is a white crystalline powder, soluble in 10 parts water or in 20 parts glycerin; it is odorless, and does not corrode metal—hence is suitable for surgical use. Despite good and legitimate introduction through the medical press, it appears to be simply a secret proprietary compound, and therefore not ethical.

Analgen ($C_{26}H_{14}N_2O_4$). — Synonyms: *Ortho-oxyethyl-ana-monoacetyl-amido-chinolin.* — A chinolin derivative; white, crystalline powder; soluble in hot water, alcohol and dilute acids, but insoluble in cold water; melting point, 311° F.—Antipyretic, analgesic, anti-rheumatic; dose, 15 grains average; literature scant; not in much demand; recently declared useless by A. Jacobi, based on clinical trial.

Di-iodoform (C_2I_4).—Syn.: *Ethylen-periodide.*—Occurs in form of yellowish-white, prismatic needles; almost odorless, but on exposure to the air it takes on a characteristic odor und turns to a brown color; insoluble in water, sparingly soluble in alcohol and ether; melting point, 192° F.—A substitute for iodoform, containing 95.28 per cent. iodine—a larger proportion than any other iodoform substitude. Has been used and reported on favorably to a limited extend. It is rather too expensive to achieve popularity.

Chloralose ($C_8H_{12}Cl_3O_6$). Syn.: *Anhydrogluco-Chloral*—A mixture of chloral and glucose; fine, white, crystalline needles; slightly soluble in cold water, more readily in warm water and alcohol; melting point, 365° F. — Analgesic and hypnotic; dose, 8 to 15 grains; gives prompt and refreshing sleep. For a brief period during 1893 this product became very popular, and seemed sure of lasting esteem; but a few quickly following cases of poisoning, and the first untoward physiological report cast doubt on its value, and now chloralose is quickly advancing to oblivion.

Dulcin  $(CO{<}{\substack{NH_2\\NH}}.C_6H_4.O.C_2H_5)$. — Syn.: *Para-phenetol-carbamid.* — A white, crystalline powder; soluble in about 800 parts water at 59° F., in 50 parts boiling water, in 25 parts 90 per cent. alcohol; melting point, about 345° F. If Dulcin is boiled any length of time in solution, it decomposes and loses its sweetening properties; this fact must be held in mind when employing it.—Dulcin is a substitute for saccharin, made by improved process, sweeter and of more agreeable and natural taste, and devoid of the untoward physiological effects of the older product. It is 200 to 250 times sweeter than sugar.

Gallanol $(C_6H_2{<}{\substack{(OH)_3\\CO.NH.C_6H_5}}{>} + 2H_2O)$. —A grayish-white powder, subject to change of color on exposure to air and light; can be produced in white crystals by repeated precipitation; soluble in alcohol and ether, but insoluble in chloroform or benzin. An antiseptic and microbicide; substitute for pyrogallol, being fully as active but not irritating and not toxic. Recommended for all forms of skin diseases, eczema, psoriasis, etc., in 3 to 30 per cent. ointment, collodion, dusting powder, plaster-mull, etc. Came into considerable demand shortly after its introduction a year ago, but this interest has again abated.

Methacetin $[C_6H_4.OCH_3.NHCH_3CO]$.—Syn.: *Para-acetanisidin, Para-oxymethyl-acetanilid.*—Acetanilid derivative; scaly, colorless and odorless crystals; sparingly soluble in cold, and readily in hot water and in alcohol; melting point, 260.6° F.—Antipyretic, analgesic and antiseptic. Dose internally, 2 to 5 grains; best antifebrile effect with small doses. Literatuer scant, and demand almost *nil.*

Malakin.—Syn.: *Salicyl. paraphenetidin.*—A mixture of salicylic acid and phenacetin; occurs in form of fine, bright-yellow needles; insoluble in water, sparingly soluble in cold but readily in hot alcohol; melting point, 197.6° F.—Antipyretic, analgesic and anti-rheumatic.—Dose, 1 gramme, with 4 to 6 grammes daily maximum. Its effect is manifested slowly and is unreliable, because of insolubility principally.

Lipanin is an artificial mixture of 1 part lipanic acid and about 16 parts olive oil, designed by Prof. J. von Mering as a substitute for cod-liver oil. It contains a large percentage of free oleic acid, making it easily digestible; it emulsifies readily and is quickly absorbed; it is highly palatable, and acceptable to the weakest stomach. Dose, 1 drachm to commence with, gradually increased to 2 and 4 drachms, according to age. It has received flattering endorsements from high authorities, and is in extensive use for anemia, rachitis, chronic wasting diseases, emaciation, during convalescence, and for weakness of body and system generally.

Sanatol; A New Disinfectant.—Sanatol is described (*Oesterr. Sanitätswesen*, Aug., 1893), as a blackish-brown, rather thin fluid, of a tarry odor and a strongly acid reaction; soluble in water with milky turbidity and subsequent precipitatian of resinous flakes. Investigation apparently has shown that the article is obtained by treating not fully purified, so-called "100 per cent. carbolic acid" with an excess of concentrated sulphuric acid, and diluting with water.

Sanatol is reported to be a quite efficacious disinfectant. A 1 per cent. solution killed isolated cholera-vibrios within half a minute; a 2 per cent. solution killed the bacterium coli commune in one-half, and the micrococcus pyogenes in one minute; but it was much less efficient against anthrax spores, which were killed, even with a 20 per cent. solution, only in six days. Owing to its physical properties and the free acids it contains, sanatol is only serviceable for coarse disinfection, and not for surgical purposes.—*Am. Med.-Surg. Bulletin.*

On the Therapeutic Uses of Exalgine.—Dr. Savill reports his experience with this drug in the Paddington infirmary. Detailed notes of the cases in which it was used were kept, and he concludes that if care is taken not to administer the drug to patients with febrile temperature or who are constipated, no ill effects are ever likely to be experienced. He administered it in the following cases with beneficial results: Carcinoma uteri, with severe attacks of abdominal pain of a dull continuous character. Given two grains every two or three hours; relief pain immediate and marked. Neurasthenic cephalalgia, given one grain doses three times a day; relief. Rheumatic arthritis, with severe neuralgic pains in head and face; two grains of exalgine every hour; pain relieved. Another was a case of cardiac valvular disease, with intense paroxysms of pain over the brow; was given one grain three times a day. A case of chronic phthisis, associated with multiple neuritis, with neuralgic manifestations, especially affecting the head and eyes; two grains of the drug every two hours. A case of gouty arthritis, associated with peripheral neuritis, with severe pains in the feet and along the vertebral column; two grains every three hours; the vertebral pain disappeared. Other cases are cited. The author thinks one is justified in anticipating that in this drug there exists a valuable analgesic, especially adapted to relieve pains of the neuralgic type, being prompt and efficacious in its action, and without any of the deleterious after-effects observable in some of the other drugs belonging to the same chemical group.—(*Lancet,* Nov. 25.)—B. M. Caples, in *Review of Insanity and Nervous Disease.*

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. MAY 15th, 1894. No. 11.

Editorial.

THE ULTIMATE EFFECT OF TUBERCULIN WHEN USED AS A DIAGNOSTIC AGENT.

Every reader of this journal should study carefully the interesting and instructive paper in another department of this number from the pen of Dr. PORTEOUS, relating to the use of tuberculin as a diagnostic agent, and then he should ask himself the question, "Is this all?" If it were possible to eradicate the disease by the means indicated, it would be but a short time ere every government in the world would have a complete bureau for the purpose. And if the means was successful in animals, why not equally so in mankind? And the next thing in order would be the treatment of human beings, merely as a precautionary measure, similar to the method now pursued for preventing the spread of small-pox. Again, if the procedures advocated were found to be effective, we should shortly have measures for relief from the dangers due to other diseases, serious ones, like diphtheria, for example.

Now, it has been proven by Dr. MYERS, of Philadelphia, recorded in a former communication to this journal, that diphtheria can be prevented, and also, that its severity can be materially modified by the cautious use of a product prepared from the diphtheritic exudate—a diphtheritic tox-albumen. The two diseases, while similar in some respects, are by no means identical, but as diphtheria is by far the more active in its spread, the ultimate effects of subcutaneous injections of the prophylactic may be compared without detriment to either.

Dr. MYERS says, that the diphtheritic tox-albumen is toxic, and that, when too large a quantity is employed, poisonous effects may ensue; and the same is substantially true in regard to the use of tuberculin.

When we come to examine the ultimate effects of the sterilized diphtheritic poison, it is but reasonable to assume that the ultimate effects of the tubercular poison will have a similar effect, modified in degree by reason of the lesser activity of the latter. The results of toxic doses of the diphtheritic poison, thoroughly sterilized, will, we might say, must, indicate the results which are likely to follow the use of the tubercular poison. Prof. WELCH, and Dr. FLEXNER, of the Johns Hopkins Hospital, some years ago, made some interesting experiments with the diphtheritic poison, and demonstrated that this poison, the products of the bacteria, ultimately produced death, but not so rapidly as the solution of the bacteria themselves. To make the matter a trifle plainer, they injected into the abdominal cavity of rabbits a solution of the diphtheritic exudate, with the result that the rabbits died within *twenty-four hours*, with all the symptoms of diphtheria well marked. A portion of the same solution used was then thoroughly sterilized, and a quantity injected into the abdominal cavity of other rabbits, this also being followed by death, in *fourteen days*, the animals on post-mortem examination showing all the characteristic pathological lesions of diphtheria. There was infiltration of the intestinal mucous membrane, fatty degeneration of the heart and liver, and more or less irritation set up in the kidneys, just the same as found in patients dead of diphtheria.

Of course, so far, no investigations have been made with a view to determine the questions here presented, but the probabilities are that this will be the next inquiry to be settled, and until then, it does not seem the part of wisdom to proceed with the use of tuberculin as a diagnostic agent for the purpose of prophylaxis.

Correspondence.

THEORY OF PARACELSUS—DEFENSIVE PROTEIDS.

To the Editor :

Sir: I desire to say that your article in the *New York Medical Journal* excited my deepest interest, which was only increased by the article in the December number of the American Therapist. Your theory reminds me of that propounded by Paracelsus, who found the essence of disease in injury to the individual vital principle —*the Archaeus*—by foreign principles; and searched for a remedy that would free and strengthen the Archeus. He postulated a unit of the vital force, and inferred that there must be a similar unit in the remedy —a unity universal—that should have the virtue of maintaining the vital force against disease. Of course he mixed a good deal of magical nonsense with it.

What you say of calcium sulphide I know to be true, even to the statement that "but a limited number of physicians have any conception of its merits." I am not familiar enough with your theory to judge of its application to the use of calcium sulphide. I have always contented myself with the theory that it possessed the virtue of breaking up and rendering harmless the tox-albumens, which are less stable than the normal albumens of the blood; but that, in case it is pushed beyond certain limits, it affects these latter also, and so induces the pathological conditions enumerated in the text-books, and which no doubt have misled the larger portion of the profession.

I would suggest that you consider the theory of "defensive proteids" in relation to your discovery. "———."

Reply.

The foregoing communication has been received from a gentleman who does not care to have his name brought into the discussion, but it brings forward some interesting questions which will be of some service as showing the indefinite ideas which were entertained by physicians in the early history of medicine. Owing to the dogmatic character of his teachings, Paracelsus has never been favorably regarded by modern physicians, and yet he was the first to introduce the use of chemical substances as remedial agents, and at one time had a considerable following. As to his standing and reputation, we have the most conclusive evidence that it was quite as good as that of Galen, the founder of Galenical medicine. Galen was as actively engaged in combatting the practice of his time as was Paracelsus, and in fact had no reputation until long after he had joined the silent majority. His teachings, however, were of a more substantial character, less dogmatic, and more in keeping with the science as we now understand it, than that of Paracelsus. As a consequence, the name of Galen lives in medical science while that of Paracelsus has long been forgotten.

For the sake of argument it may be admitted that the ideas embodied in cellular-therapy are in some respects similar to the theories advanced by Paracelsus, but there is a material difference, since the theory of cellular-therapeutics is in harmony with modern scientific investigation. Since Professor Metschnikoff first advanced the theory of phagocytosis, experimental physiologists have been on the *que vive* to discover the actual facts in regard to the powers of these white corpuscles. A year or more ago, two Frenchmen undertook to study the antiseptic properties of the white blood-corpuscles found in pus, as it is believed that these bodies do in some way favor the processes of repair; but their search was not rewarded by anything definite, or rather, their investigations showed that they possessed no perceptible antiseptic value, and for the very good reason that these corpuscles were dead corpuscles. Later, Professor Vaughan took up this study, but in beginning his operations he assumed, that if these bodies possessed any inherent resisting properties, these properties were to be found in living, healthy corpuscles. Accordingly, he prepared antiseptic solutions from bone marrow, from the spleen, from the thyroid and thymus glands, from the yelk of the egg, and even from yeast-cells, thus demonstrating, that living cells possess as an inherent property, the power to give up a substance which is actively antiseptic, a phosphorized proteid, which he has designated "nuclein." This substance is constantly being secreted by the white blood-corpuscles, and to this cellular activity is due the fact that the blood does not undergo decomposition.

Now, these facts being known, what more simple than to assume that the remedy which will increase this nuclear activity contributes to the restoration of cell-function. If we were to trace the clinical properties of many remedies in certain diseases, it could no doubt be demonstrated, that their great value was due to their influence upon cellular activity; hence the theory of cellular therapeutics. And this leads to the further inference that nucleins are essentially "defensive proteids," and that in using them for therapeutic purposes, we are merely following out the methods of nature in restoring lost or suspended function. In following out these principles we shall avoid all mystery, all magic and quackery, because every step will conform to the most critical demands of modern science.—Editor.

THE USE OF NUCLEINS IN TUBERCULOSIS.

To the Editor:

Sir: I read with pleasure and profit your valuable journal, and am greatly interested in your cellular-therapy and in your experiments with nuclein. I have a case of tuberculosis, second stage, which but recently came under my observation. If you think nuclein would be of any benefit, I would be pleased to have you send me some or order it for me.

H. M. Ochiltree, M.D.

Haddam, Kansas.

Reply.

According to the experimental investigations of Professor Vaughan, reported in his paper read before the Pan-American Medical Congress, Washington, 1893 (thirteen persons being present besides the speaker), solutions of nuclein introduced subcutaneously *after* the injection of a solution of tuberculous sputum, prevented the development of tuberculosis in rabbits. Two rabbits were selected, one being used as a control experiment, and both were killed at the end of fourteen days. In the case of the rabbit *not* protected, the abdominal cavity was completely filled with a mass of tuberculous infiltration, while in the protected animal there were absolutely no evidences of tuberculous infection It must be borne in mind, however, that this was an experimental test, and not a clinical demonstration. What would be the effect of the hypodermatic use of nuclein solutions in tubercular infection, the writer does not pretend to say, although it has been used in other diseases, notably in choleraic attacks, with most marvellous effects.

Any competent observer who will take the time necessary to demonstrate under the microscope the wonderful effects produced by nuclein solutions upon the red blood-corpuscles—in malaria and anemia, for example—will not hesitate a moment in arriving at the conclusion that the action of the remedy is most beneficial. Even where it is not possible for the observer to make such a practical demonstration, the exhilirating effect upon the patient, together with the favorable turn of the disease, would naturally lead to this conclusion.

The most important question to be determined in applying the nuclein solutions for the relief of tuberculosis must be settled by clinical investigation, but the writer has not felt warranted in going into this study until it was positively shown that these solutions even in considerable dosage were absolutely free from any deteriorating effect upon the human economy. That question has been fully settled by the use of the substance hypodermatically in other affections, and further confirmed by the liberal employment of it internally for the relief of various disorders to which it seemed to be suitable; but in throwing out this suggestion it should be stated that nuclein solutions do not supply the economy with material for reconstructive purposes, nor does nuclein supplant the use of other remedies which may be indicated for special purposes. All that can reasonably be claimed for the remedy is, that it stimulates cellular activity by increasing the secreting function of the white blood-corpuscles, or leucocytes. In cases where nutrition is below par, nuclein will be of temporary value, but its curative action will depend upon the ability of the system to continue a leucocytosis after it has been inauguarated by artificial means, so that everything depends upon our efforts to promote digestive leucocytosis. If the patient can't eat, he can't live, no matter how much we stimulate the activity of the nuclear body in the white corpuscle.

These questions have been so fully and candidly presented in the current issues of this journal for some time past that it seems unnecessary to repeat what has gone before, but the writer takes this opportunity to emphasize all that he has published in regard to cellular therapeutics, being still firm in the belief that the principles underlying it are destined to become the foundation stones of a truly scientific therapy.

The case of tuberculosis reported in another department of this number will show that the general effect of nuclein, even in small doses, is favorable; but owing to the fact that investigations covering its value in this disease are still in progress, nothing has been said in any previous reports. That it possesses certain distinct properties cannot be doubted, but for the present it seems best to leave the subject for future consideration.—Editor.

THE SUPPLY OF NUCLEIN SOLUTION AND GRANULES.

To the Editor:

Sir: I am very much interested in your articles on the use of "nuclein solution." It is mentioned where you prescribed it in granules and also in other forms. Will you please tell me where it can be procured in a reliable form?

I have been a subscriber to The American Therapist, and a close reader from its first number, and think it is one of the very first journals in the land. I like its trend from beginning to end.

E. I. Persinger, M.D.

Campti, Louisiana.

Reply.

Acknowledging the flattering compliment paid to The American Therapist, the Editor begs to say that the chemist who has prepared the "nuclein solutions" for him has recently arranged with Mr. Chas. Leedom, of Philadelphia, for their sale and for the manufacture of tablets and granules. These solutions are prepared with difficulty, and for a long time it was thought impossible to manufacture them at a price which would warrant offering them on a commercial scale. The principal difficulties have been met and overcome, and in view of their extended range of usefulness, it has been deemed expedient to offer the product to the medical profession, although but a limited demand can be met.

In this connection the writer begs to state that his chief interest in this new departure lies in the fact that nucleins supply an admirable illustration of the practical adaption of the principles underlying the doctrine of cellular-therapy, a therapy which has for its object the study of the effects of medication upon the life and functions of the living cell. Elsewhere he has pointed out that nuclein therapy is merely a branch of cellular-therapy; but the active interest taken in this matter will do much to create renewed interest in the general subject of cellular therapeutics.

Those who desire to become familiar with the available information in regard to the physiological properties of nucleins, should consult the current issues of The American Therapist, commencing with the September, 1893, number, in which appears the contribution of Prof. Vaughan, together with his directions for their preparation, etc., etc. The subject of cellular-therapy as the basis of scientific therapeutics was presented in Vol. I., in the course of a series of four articles, and naturally led up to the more recent demonstrations relating to nuclein therapy.—Editor.

OPIUM SMOKING FOR RETENTION OF URINE.

To the Editor:

Sir: Some years ago I recorded, in the *Medical World*, a case in which I advised *opium smoking* for the relief of retention of urine with signal success. Quite recently I have had an opportunity of repeating this unusual treatment, and again it has succeeded. I was called to see an old man who was suffering the untold miseries of retention, due to a prolonged debauch. He had not urinated for forty hours, and—whether from lack of skill on my part, or want of room in the urethra—I could not draw off the urine. I then remembered my previous experience in a similar case, and finding that he was well accustomed to smoking, and as he lived close to my residence, I went home, procured some opium and a pipe, and returned and "cooked" it according to the most approved methods of the 'heathen chinee.' I applied a mustard and flaxseed poultice over the site of the kidneys, and set him to work vigorously over the pipe. Muscular relaxation soon ensued, and there was "water, water, everywhere, but never a drop to drink."

While this can hardly be recommended as a therapeutic agent, I still think it is worth mentioning, as the occasion may arise when it may be more readily available than more incisive measures. Experience has shown that opium, whether smoked or eaten, is comparatively harmless under ordinary circumstances; and certainly the amount consumed in a pipe or two could not be very injurious.

This man had a tight structure and an enlarged prostate, and was in eminent risk of rupturing the urethra; yet by "hitting the pipe" he was apparently saved from the necessity of a critical operation.

Louis Lewis, M.D.

2011 Arch street, Philadelphia.

ACTINOMYCOSIS.

To the Editor:

Sir: This disease in bovines is commonly known as "lumpy jaw." It has, until recently, been confounded with osteo-sarcoma. It sometimes affects man. From the examination of a recent excellent sample, I make the following brief notes. The effect of the disease on the part affected, seems to be, to convert the tissue into innumerable tiny excavations, while the irritation thus set up causes abnormal growth of the contiguous parts, including the bone, which exhibits the eroding effect of ulceration at some points and the enlargement of its structure at others.

The peculiarity of the germ, the actinomyces, or ray fungus, is that it consists of a delicate mycelium, to which is attached a club-shaped body of variable size, readily stained by the aniline colors, but requiring a microscope of considerable power, an eighth inch objective, at least, to render it visible to advantage.

The fungus is to be found in tiny granules, round or oval; the central portion being a mass of mycelium from which numerous clubs of various sizes project with more or less prominence. The granules may be found loose in the pus which oozes from the cellulated cavities with which the tissue is honey-combed. On account of the friable character of the tissue thus cellulated, it is not easy to make sections, or to find the fungus in them, as the granule is apt to be lost in the process of preparation. I found that by making fresh cuts into the tissue, the tiny balls could be seen along the recent surfaces and in the cellular depressions, and were easily picked off on the point of the needle. A sufficient number being collected on the glass slide, they may be rubbed into a thin pulp in a drop of water or glycerin, and stained, after which a portion can be mounted in glycerin, or if water has been used, and the rubbed up portion allowed to dry, it may be treated in a drop of turpentine, and after again becoming dry, mounted in Canada balsam; thus reducing the process to a minimum.

The clubs can be readily seen without staining, but of course the added color renders them much more conspicuous. The treatment of the disease by potassium appears to be attended with considerable success. Notwithstanding an enormous mass of diseased tissue, both fleshy and bony, in the said of the case I refer to, the animal throve and fattened well. Such cases appear to be rather prevalent, and no doubt their flesh is not unfrequently very improperly sold for human food.—P.

Current Literature.

HINTS TO STUDENTS ON MATERIA MEDICA AND THERAPEUTICS.

Dr. John A. Henry, of Denver, gives the following summary of the uses of some medicinal substances, in the Gross Medical College *Bulletin:*

Cod Liver Oil.

1. The function of fat in the economy is to produce force, and it is therefore demanded by the tissues in direct proportion to their activity, which is (1) nervous, (2) growing, (3) muscular, (4) glandular, (5) mechanical.

2. As a nerve food in early childhood, and as a prophylactic against ulcerative diseases of the eyes and ears, asthma due to weakened mucous membranes, convulsive diseases, and in many cases tuberculosis.

3. Combined with other remedies for the treatment of true nervous diseases, such as epilepsy, neuralgia, megrim, etc., notably so if hereditary.

4. For chronic rheumatism, essentially a skin disease.

5. For diabetes mellitus and chronic forms of Bright's disease where there is anemia but no gastritis.

6. For phthisis, to facilitate cough and sustain strength.

7. For skin diseases of a scaly nature, not dependent upon toxemia.

8. For fevers where the temperature is not above 100° F.

9. For all diseases where there is suppuration.

Iron.

Iron is indicated in all anemias, unless they are accompanied by fever or due to some malignant disease. In chlorosis the carbonate, made extemporaneously by combining the sulphate of iron with the carbonate of potassium, should be used.

After fevers there is always more or less anaemia.

The weakness of the muscular system is shown by the acceleration of the pulse, due to cardiac weakness on the slightest exertion, as setting the patient up in bed. Iron combined with restoratives should always be given.

In Bright's disease, the muriated tincture, combined with corrosive sublimate and the sweet spirits of nitre, can be given.

In diabetes, iron should be given; constipation should be carefully guarded against. The iron should be given with a laxative.

Nervous exhaustion, accompanied by the accumulation of phosphates and hematin in the urine, calls for iron.

In chronic constipation of women; uterine disease, characterized by weakness of the uterus or its supports, prolapsus uteri, etc.; weakness of the bladder, also in enlargement of the prostate gland in the male.

In cardiac disease, the patient should be in the open air as much as possible, combining this treatment with iron.

All diseases of the heart call for the administration of iron. By increasing the muscular strength of the heart, it acts as a prophylactic to dilatation. For the same reason it should be given in bronchitis and emphysema.

In pneumonia, when the temperature is low, with a debilitated heart, occuring in alcoholic subjects, the muriated tincture should be given with digitalis. It can also be given in diphtheria with good results. In these, large doses should be given, the muriated tincture acting as a symptom medicine.

In phagedenic ulcers and chancroids, with a tendency to rapid sloughing, 20 grains of the potassio-tartrate every one, two, or three hours can be given.

In chronic and indolent ulcers; varicose ulcers can be treated by a wash containing 5 grains of the sulphate to an ounce of water.

Various forms of neuralgias, and especially those of the intermittent type and associated with anemia, are best treated by iron.

DIPHTHERIA PROPHYLAXIS.

The following resumé concludes a scholarly contribution on "Individuelle Prophylaxe gegen Diphtherie der oberen Luftwege" by Dr. August Caillé in the N. Y. *Medicinische Monatsschrift:*

1. Immunity from diphtheria infection may be practically accomplished through certain prophylactic measures.

2. To achieve this a daily inspection of school children is necessary and feasible.

3. If municipal control is inadequate, individual local prophylaxis becomes important.

4. A good and efficient prophylaxis consists of a regular, continuous daily naso-pharyngeal irrigation with weak antiseptic solutions. (Mechanical antisepsis.)

5. Catarrhal and hyperplastic processes of the naso-pharyngeal cavity, as also carious teeth, facilitate diphtheritic infection, and require energetic treatment.

6. Naso-pharyngeal irrigation is indicated:

a for healthy children over nine months old, especially such children as are exposed to diphtheritic infection, and

b in every case of naso-pharyngeal catarrh, whooping cough, scarlet fever and measles, and before and after tonsilotomy.

ACUTE BRONCHITIS IN INFANTS.

Dr. Charles G. Kerley, of New York, contributes a practical essay on "The Management of Acute Bronchitis in Infants Under One Year of Age," to the May, 1894, issue of *Archives of Pediatrics.* His wide experience at the N. Y. Babies' Hospital gives authority to his system of management and mode of treatment, all described in great detail in this essay. He concludes with the following summary:

In conclusion, the management of a severe case of bronchitis in an infant under one year of age would be about as follows: Changing of rooms, which would mean good air, even temperature at 72° F., sufficient warm, dry clothing and the child kept in its crib, and the position changed frequently of an athreptic. If bottle-fed, partially digested or easily digested foods would be given, a daily evening sponge or bath in salt water, small doses of castor oil, followed by antimony and ipecac in small doses. Counter-irritants in the use of mustard, steam spray, if especially indicated, Dover's powd. and whiskey, as the restlessness and heart might require. The fever in an uncomplicated case of bronchitis requires no special treatment.

THE PATHOLOGY OF EPILEPSY.

From an address on this subject, delivered by Dr. E. C. Beyer, of Indianapolis, before the Marion Co. Medical Society (*Ind. Med. Journal*, May, 1894), we take the following interesting concluding statement: Dana says (not in his own words) that the mechanism of an epileptic fit consists in an explosive discharge from the cortical motor cells, not properly controlled or inhibited on account of the fatty degeneration of the underlying layer of angular cells. This is at best but one manner of production.

If I be allowed to put my views in the case in a rather dogmatic manner, subject of course to amendment, I would conclude about as follows: The impetus to epileptic seizure may begin as an irritation in any part of the body, centrally or peripherally; to become effective it must act through cells of the cortex in an unnatural state of nutrition or equilibrium. That the beginning of the seizure is caused by a more or less explosive discharge in the cortical cells as a rule, though possibly at times in lower strata; that the explosion may begin in motor, sensory, or intellectual areas, but has a tendency to spread by radiation and along nerve tracts, the climax, characterized by general convulsions, being reached when the impulse reaches and involves the convulsive centres at the base of the brain.

As to the nature of the discharge it is a question which very nearly touches bed-rock. What changes does that initial fright produce? What physical changes occur during the ebb and tide of thought? What changes in the intimate chemistry of the cell, or in its electric tension, or its potential factors form the basis of an idea or of a muscular motion. These things are at present beyond us, and we call them functional—intimately related to that unknown factor we call "life"—almost on the border of those things which man's mind was not made to compass; but, gentlemen, I trust and believe that they are just this side of the borderland, and their further investigation not, as Foville would have it, "absurd."

LACTATE OF STRONTIUM IN NEPHRITIS.

In an exceedingly instructive clinical lecture by Dr. J. M. DaCosta in the *Medical News*, three cases are related, illustrating different stages and forms of nephritis, and showing, in his opinion, the value of the lactate of strontium in this malady. Stevens' Manual of Therapeutics, describes the lactate of strontium as a white, granular powder, odorless, and of a slightly bitter, saline taste; soluble in water and alcohol. Dose, ten to thirty grains.

DaCosta gave it in thirty-grain doses in solution four times a day, so that the patient received from a drachm-and-a-half to two drachms daily. In his cases the results were striking, the urine was increased in quantity, the bad symptoms disappeared, and in one case recovery seemed to be complete.

In conclusion he says:—I must confess, in the main, that what I have shown you to-day of the effects of the lactate of strontium in cases of nephritis only confirms my previous observations with this agent. The salts of strontium are valuable as diuretics in renal affections, and they are particularly valuable in the acute forms, but do less good in the chronic forms. They do not, according to my experience, act so much upon the structure or tissues of the kidneys as they do upon its secreting function. They are admirable diuretics. The claim that has been made by some French clinicians, that strontium salts markedly reduce the amount of albumin in the urine has not been fully confirmed in my experience, except that the relative proportion of albumin is greatly reduced by the great increase in the quantity of the urine secreted. There is, however, some slight diminution in the amount of albumin, as well as increase in the quantity of the urine, especially in the acute forms. Whether in the parenchymatous and interstitial renal diseases these salts act beneficially upon the diseased or degenerated structures, or simply act as diuretics, has not been finally settled; but they certainly accomplish more good in the acute than in the chronic forms of nephritis.—*Maryland Medical Journal.*

HYPNOTICS COMPARED.

In an address on "The Care and Treatment of the Insane in Private Practice" (*Va. Med. Monthly*), read before the North Texas Medical Association, at Paris, Tex., Dr. J. T. Wilson gives his views on the treatment of insomnia, with a comparative estimate of the available hypnotics. He says:

Insomnia, occasionally very persistent, is often a prominent symptom—sometimes the first — and frequently gives trouble. Sleep—good, long, refreshing sleep—"tired nature's sweet restorer," should be obtained in some way. We have now many valuable remedies for inducing sleep that we did not have twenty-five or thirty years ago; but if we can bring it about without the use of drugs, which is seldom, however, it would be best. Sometimes a good hot bath will produce a natural sleep; a good supper an hour or so before bed-time; a long, somewhat fatiguing walk, or, on retiring, a generous glass of milk, with the addition of half to a tablespoonful of whiskey or brandy, will have a happy effect now and then. I ought to state in this connection that alcoholic stimulants are sometimes very necessary and should be administered, but with great caution, for fear the habit may be established.

In former times opium was the drug mainly relied upon to produce sleep and quiet, but quite frequently it had the opposite effect, and sometimes only aggravated the condition; it is, I think, a dangerous remedy, and except for the relief of actual pain, and in some special conditions, should not be used; it locks up secretions, disorders digestion, and may increase the mental irritability.

The bromides will sometimes have a happy effect; often, however, they will not answer alone. Chloral hydrate is the most reliable hypnotic at our command, but is probably the most depressing, which is one great fault with nearly all this class of remedies of any value. From fifteen to twenty grains will usually be enough, and I think it is best combined with one of the bromides in from twenty to thirty grain doses. Sometimes it may be necessary to give at the same time an alcoholic stimulant, or one of the heart tonics, as strophanthus, digitalis, nitroglycerin, etc. Paraldehyde is an excellent hypnotic, and does not have the depressing effect of most of the others. It has its disadvantages, however, for, like chloral, it has a very unpleasant taste and also a disagreeable odor. Many object to it on this account. And then, too, if used for several days, the patient becomes accustomed to its action, and it requires rapidly increasing doses. I usually begin with about forty minims, and it can be cautiously increased to two drachms.

Sulphonal, though not as reliable as the former, is a good hypnotic in doses of from ten to twenty grains; indeed, as high as thirty grains is sometimes given, but the maximum doses of these remedies should not be administered at the commencement. Sulphonal has the advantage of not being disagreeable to take, and can be given with the food; it is now largely used.

Where much continuous excitement and restlessness exists, hyoscine hydrobromate or hydrochlorate are our best reliance, beginning with 1-50th grain and gradually increased as may be necessary; this drug, too, requires increasing doses after having been given a few times, but is a remedy of great value.

Chloralamid, amylene-hydrate, and urethan are being used extensively, but I have had no personal experience with them.

All hypnotics irritate the stomach, and should be given only when the absolute necessity exists. Hypodermic medication is best when it can be used.

PHYSIOLOGICAL ACTIONS OF SPARTEINE.

The following valuable conclusions are drawn by Dr. David Cerna, from his very extended and thorough physiological investigation of sparteine, published in a late issue of the *Am. Med.-Surg. Bulletin:*

1) Sparteine causes a brief period of increased muscular irritability.

2) The drug increases reflex action by directly influencing the spinal cord.

3) Reflex action is afterward depressed by sparteine: first, through a primary stimulation of Setschenow's reflex inhibitory centre, and secondly, by influencing the cord directly.

4) The convulsions produced by the drug, generally of a tetanic nature, are of a spinal origin.

5) The paralysis caused by the medicament is similarly the result of an action on the medulla spinalis.

6) Sparteine increases both the rate of the pulse and the force of the heart. The acceleration of the heart's action is soon followed by a distinct decrease of the same.

7) The primary increase in rate is due to an action on the heart itself.

8) The subsequent decrease in the rapidity of the pulse is of double origin; a direct cardiac action and stimulation of the cardio-inhibitory centers, centrally and peripherally.

9) The enormous increase in size of the

pulse curves is probably the outcome of a direct influence on the cardiac muscle.

10) Sparteine increases the blood-pressure by an action on the heart and also by stimulating the centric vaso-motor system.

11) The subsequent fall of the arterial pressure under the drug, is likewise the result of a double action; paralysis of the vaso-motor apparatus and a depressant cardiac influence. Cardio-inhibitory stimulation, through the vagi, is possibly a third factor in the causation of reduced pressure.

12) Both the increased number of the respiratory movements and the secondary depression of the same, are due to a direct action on the respiratory centres in the medulla oblongata.

13) Sparteine kills generally by respiratory failure.

14) Sparteine may be classed as a decided cardiac stimulant, its range of action being similar to that of digitalis.

THE TREATMENT OF MYALGIA.

We know a large number of affections better clinically than pathologically, says Dr. A. A. Eshner in Philadelphia *Polyclinic;* and continues: One of these is that condition of peripheral soreness or painfulness, sometimes an affection of the muscles themselves or of their fibrous sheaths, sometimes involving the fibrous structure of joints, sometimes the peripheral sensory nerves. In the absense of definite knowledge as to the precise nature of cases of the kind referred to, I am in the habit of grouping them together under the common designation of myalgia; and have found the following formula of service in the treatment of a large number.

℞ Tinct. guaiac. ammoniat.
Ext. cimicifugæ fluid.
Ext. erythroxyli fluid . . . āā f ʒ j. M.

A teaspoonful is to be taken three times a day before meals.

When constipation coexists an equal proportion of fluid extract of cascara is added. I can warmly commend the employment of this combination under the conditions indicated.

Book Notices.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX. A work of reference for Medical Practitioners. Cloth, 8vo, pp. 704. New York; E. B. Treat, 1894. (Price $2.75.)

The reputation of this work has been well established by its successive yearly issues, of which the present—the twelfth—is in advance of its predecessors, both in the amount of contained matter and in the number and excellence of its illustrations. These are especially noticeable in the interesting article on the surgery of the bladder, and in the valuable paper on insanity by Dr. Shaw, of Liverpool, in which the numerous and life-like faces convey an accurate idea of the typical aspects produced by the various forms of this many-sided disease.

The first forty-seven pages are taken up with a review of the new remedies; of which it may be said, the cry is, "still they come." Then up to page 582 we have the notes and memoranda of new treatment, with headings arranged alphabetically. Some pages follow on the latest aspects of "sanitary science;" other pages on "progress in pharmacy" and "new inventions of instruments and appliances." "Books of the year" follow and complete the volume, which is highly creditable both to the compilers and the publishers, and cannot fail to be useful to the physician or surgeon who seeks to keep abreast of the times.

A cursory glance through this book yields some important facts; for example, that permanganate of potassium is an antidote to phosphorus (in addition, as recently announced, to its being an antidote also to morphine poisoning). It is interesting to learn, that strychnine is the best antidote for snake poison, and also that chloroform far exceeds ether in danger while the patient is in the hands of the surgeon: but the dangers which attend ether after the patient is put back to bed, if properly recorded, "might prove chloroform to the least mortal of these two drugs" (p. 8.) Again, according to Dr. Shingleton Smith, phenacetin is taking the lead among antipyretic drugs of the aromatic series, in fever cases, and he agrees with other authorities that it is "the safest and most efficient member of the aniline group."

In another page, in a reference to the latest antipyretics and hypnotics, "which are almost without exception patent medicines," the question is asked, "Is there one of us who is prepared to assert that the use of antipyretics in continued fevers is of any benefit to the patient, or that it is the first duty of a physician when consulted for insomnia, to prescribe a hypnotic?" It would be easy to continue summarizing points of interest, but space fails and the reader must be left to find them out for himself, which will be no difficult task in a field so promising. P.

CLINICAL DIAGNOSIS. By ALBERT ABRAMS, M.D. (Heidelberg), Professor of Pathology, Cooper Medical College, San Francisco, Cal., etc. Third edition, revised and enlarged. Illustrated. Cloth, 8vo, pp. 254. New York: E. B. Treat, 5 Cooper Union. 1894. (Price, $2.75.)

A very complete little book on physical diagnosis. The articles are concise and well written. The tables on differential diagnosis have been enlarged and are marked by their excellency. A new chapter on insanity has been added, making this book still more useful than its former editions. This book can be recommended to the student preparing for examinations, and makes interesting reading for the general practitioner who may need some brushing up. H. D. M.

WE HAVE received the Prospectus of "Anomalies of Refraction and of the Muscles of the Eye." By FLAVEL B. TIFFANY, M.D., of Kansas City, Mo. The book is a 12mo. of 307 pages, profusely illustrated with 200 half-tone engravings and colored plates. The work is fully up to date, strictly scientific, and—to judge from the sample pages—will be a good acquisition at $3.00 per copy. A prospectus can be obtained by writing to the author at 1235 Grand Avenue, Kansas City, Mo.

PAMPHLETS RECEIVED.

Brain Surgery, with Report of Nine cases. By F. C. SCHAEFER, M.D., of Chicago, Ill. Reprint, 1894.

Trachoma.—(Granular Lids). By Dr. FLAVEL B. TIFFANY, of Kansas City, Mo. Reprint, 1894.

Opinions of the Press on "A Bill to Establish a Bureau of Public Health within the Department of the Interior of the United States"; published by the National Quarantine Committee of the New York Academy of Medicine. 1894.

University of Wisconsin, School of Pharmacy. Announcement for 1894-95. Madison, Wisc.

The Works of Justine Siegemundin, the Midwife. By HUNTER ROBB, M.D., of Baltimore, Md. Reprint, 1894.

From same author: 1. The Limitations of the Use of the Pessary; 2. Abstract of two articles Treating of Progress in Midwifery; 3. A Case of Double Vagina, with Operation. All reprints, 1894.

Subvolution—A New Pterygium Operation. By BOERNE BETTMAN, M. D., of Chicago. Reprint, 1894.

From same author: 1. Ripening of Immature Cataracts by Direct Trituration; 2. The Spectacle Treatment of Hypermetropia. Reprints, 1894.

From F. Stearns & Co., Detroit, Mich., we have received a package of serviceable "Physicians Blotters." On the obverse side, on glazed paper, the firm has furnished another sample of its special color printing work in the form of an artistic spray of flowers. Our readers may receive a supply of these pretty blotters by writing to the above mentioned address.

THE MEDICAL PRESS.

Dr. J. E. MINNEY, for five years editor of the *Kansas Medical Journal*, has resigned his editorial position in order to devote his undivided attention to an increasing private practice and the duties involved by a place on the faculty of the Kansas Medical College, of which he is also dean. Dr. W. E. MCVEY, the publisher of the journal, has assumed editorial control. The *Kansas Medical Journal*, since assuming the dignity that goes with weekly publication, has improved in interest, and is a valued exchange.

The Refractionist is a new comer, a journal of practical ophthalmology, intended to be an exponent of the refraction world. Dr. F. F. WHITTIER, of Boston, the editor, has succeeded in securing a goodly number of prominent collaborators, and with such backing a good publication should ensue. The first issue is modest in size and make-up, but better things are promised.

Dr. DILLON BROWN will assume the editorship of the *Archives of Pediatrics* with the July issue. The publishers make this announcement abruptly without a word to speed the parting editor, Dr. W. PERRY WATSON. Our compliments to both!

The Railway Surgeon will send out its first issue in the first week of June. It will be the organ of the 1767 surgeons of the United States, Canada and Mexico comprising the National Association of Railway Surgeons. The journal will be a bi-weekly, published from Chicago.

Miscellany.

A Fairy Tale of Science.—Sir Robert Ball, in one of his popular addresses, described the diamond as consisting of an enormous number of separate molecules, swinging to and fro among themselves at a rate of some millions of vibrations a second, all in action together, and quivering with the shocks of impact. If we had a microscope which would magnify a million times, we might be able to see this action; all we can do at present is to believe it. The cause of the diamond's extreme hardness and impenetrability is that, when a steel point is pressed against it, the active molecules batter that point with such vehemence and rapidity that it cannot get beneath the crystalline surface. In cutting glass the molecules of the diamond drive the molecules of the glass before them, or mow them down like a mitrailleuse.—*Pall Mall Gazette.*

A frozen soap bubble broken in two and floating like an iridescent transparent egg shell on the surface of a vessel of liquid air was one of the most marvellous sights shown by Prof. Dewar on Thursday in a lecture at the Royal Institution on the effects of intense cold. The investigation of this new field of science is developing many wonderful bits of knowledge, some of which are sure to be turned to valuable practical account before long. The pretty experiment spoken of which delighted the audience was quite simple. The Professor poured a few spoonfuls of liquid air into a glass vessel. The intense cold caused by evaporation produced a miniature snow-storm in the atmosphere above the liquid. The operator lowered the soap bubble on the end of a rod into a freezing atmosphere. The bubble became darker. The movements of the rainbow-colored flim grew slower. It contracted somewhat in size, and a moment later froze. A slight movement broke it from the rod in two pieces, which floated for an hour, gradually accumulating a tiny snowdrift within, precipitated from the freezing air above.—Cable Report, N. Y. *Sun*, May 13, 1894.

A Wart Story.—Last month a gentleman called on me to be examined for life insurance. I noticed that the backs of his hands and fingers presented a large array of unsightly warts ("verrucæ vulgaris"), which he said had hitherto resisted all treatment, either returning or refusing to go. He went to the West Indies, and during the voyage, shot a porpoise, which was hauled on deck, and in cutting up the carcass his hands were freely besmeared with the blood. To his surprise, every wart vanished in short order, and none have come back. Returning to Philadelphia to-day, he presented himself to me with a perfectly clean pair of hands. I have often heard that pig's blood will remove warts, and have received the news with a large grain of salt; but here is a singular coincidence, to say the least of it, if only in the resemblance between a porpoise and a pig. I should to give this "remedy" a trial; but few druggists keep porpoises in stock, and I do not think I could shoot one.—*Louis Lewis, M. D.*

It is very interesting to learn from the repor of Dr. Heider on the pollution of the Danube a Vienna, that scientific authority regards rive water containing not more than 32,000 microbe to the cubic inch as being in a satisfactory condition. These figures express the density of th bacterial population of the Danube before i reaches the great Austrian city. But in passin through the Danube Canal, which traverses th city, the water receives an enormous accessio of bacteria, the number per cubic inch varyin from 344,000 to nearly 2,000,000. Of course, no all of the microbes inhabiting a river are dangerous to man. Many of them are not only harmless, but serve to prevent the multiplication o more noxious organisms.—*N. Y. Sun.*

Rubber-Tissue Gloves.—Dr. T. S. K. Morton of Philadelphia, says: I have found thes rubber-tissue gloves extremely useful in handlin offensive cases. With them it becomes a pleasur to make rectal examinations, because the ski of the hands does not become saturated wit fetor, and it is wonderful how many more examinations one makes. Also in handling stron solutions, or even in operating upon septic case they have an excellent field. The rubber is s very thin that it interferes very little with th tactile sense. As a rule, they go on with grea ease and come off readily. The dealer said h was not sure that they would last very long i handling instruments, but thus far I have use them considerably and they are still practicall in perfect order. But if they could be used onl for a few times, the price, $2.50, with 40 per cen discount to hospitals, is not excessive. I thin them of great value when handling morbi growths, or making post-mortems, where it i possible to be inoculated. They bear stea sterilization and soaking in strong solutions c carbolic acid or bichloride.

Coffee and Tea.—Experiments confirm th view generally expresses by physicians, tha coffee long boiled prejudices digestion, while simple infusion facilitates it; but its beneficia action in the latter case is now shown to be due not to direct chemical action on the albume present, but indirectly to its action on the nerve of the stomach, promoting the secretion of gastri juice. In other words, its action is physiologica not chemical.

Turning now to tea. he finds its constituent very near similar. The tea leaves also contai caffein (called also theine), aromatic substances and tannin. Consequently in tea, as in coffee the properties of the beverage depend very muc on whether it is an infusion or a decoction.

The problem is very simple. The traveler o the march will find himself benefited most by th caffein, and to secure this the coffee must b brought to, and maintained for a few minutes a the boiling point. But to take boiled coffee afte a full meal impedes digestion and heightens th heart's action unduly. On the other hand, an infusion of tea or coffee, taken at such times, facilitates digestion and exerts a wholesome and exhilarating action on the nervous system. Lon boiling, or stewing near the boil, of either tea c coffee, brings out all the tannin, which is alway prejudicial to digestion. As a consequence th practice of keeping tea or coffee hot, upon th stove, is a pernicious one.—*The Gartenlaube*, i *Dental Office a. Lab.*

The American Therapist.

A MONTHLY RECORD OF MODERN THERAPEUTICS,

WITH PRACTICAL SUGGESTIONS RELATING TO THE CLINICAL APPLICATIONS OF DRUGS.

VOL. II. NEW YORK, JUNE 15th, 1894. No. 12.

Original Articles.

THE URIC ACID DIATHESIS AND ITS TREATMENT.

By JOHN FORD BARBOUR, M.A., M.D.
Neurologist to the Louisville City Hospital.

Uric acid has now come to be regarded as one of the great poisons, fully comparable in its evil effects upon the human body to syphilis and tuberculosis, but far more insidious and slower in its action than either of these.

A few words first as to the chemistry of the subject. The acid radical of uric acid is bibasic; it forms, therefore, two series of salts, the acid urates and the neutral or simple urates. There exists also, as was first pointed out by Sir W. Roberts, a third salt, the quadri-urate.

Free uric acid is found in urinary sediment, in gravel and calculi. The neutral urates and biurates do not occur physiologically. The quadri-urate is found in the normal urine and is held in solution, owing to the temperature of the urine within the body and the presence of potassium salts. When it is not held in solution in the bodily fluids but is deposited, it gives rise to a long chapter of symptoms which we shall presently consider.

In what part of the system is this poison generated? The investigations of Chittenden, of Yale (*Dietetic and Hygienic Gazette*, Febr. 1894), Horbaczewski and others have thrown a flood of light upon this interesting problem. According to these writers, uric acid is a nuclein product and is formed in the following way: All animal cells are made up largely of proteid bodies known as nucleo-albumins, which are phosphorized albuminous bodies. Nuclein is the substance constituting the cell nucleus in all animal cells. It yields a series of decomposition products, called the xanthin bases, which belong to the uric acid group. These bases find their origin in the nucleic acid of the cell nuclei, showing that there is a close relation existing between the chemical changes going on in the cell-nuclei and the development of uric acid. This will be made plain by comparing the chemical formulae of two of these bases, xanthin and hypoxanthin, with that of uric acid:

Hypoxanthin	$C_5H_4N_4O$
Xanthin	$C_5H_4N_4O_2$
Uric Acid	$C_5H_4N_4O_3$

Every organ in the body yields uric acid when properly treated, although in different proportions.

The following table, compiled by Chittenden, is constructed from results obtained by Sadowery and Formanek under Horbaczewski's guidance:

MILLIGRAMS OF URIC ACID OBTAINED FROM 100 GRAMS OF TISSUE.

Liver, calf	60
" human	65
Lung, calf	74
" human	44
Intestines, mucous membrane, calf	84
Bone marrow, calf	40
Pancreas, calf	12
Tendons, calf	4
Muscles, calf	8
Thymus, calf	48
Stomach, mucous membrane, calf	22
Kidney, human	18
Skin, human	45
Brain, human	28
Pus, human	20
Salivary gland, calf	25
Cartilage, calf	15
Neckband, calf	14

Pawlinoff found, after ligating the ureters in birds, that the deposits of uric acid were about the cell nuclei.

A relation has also been shown to exist between the rapid development of leucocytes following the ingestion of albuminous food—the so-called digestive leucocytosis—and the production of uric acid; the latter arising from the breaking down of the newly formed leucocytes. In those diseases which are attended by breaking down of the tissues, in the fevers, pneumonia, leukemia, etc., there is increased elimination of uric acid.

Levison, of Copenhagen, in his recent monograph on this subject, *Die Harnsäure-diathese*, announces the following conclusions:

1. Uric acid is formed by the decomposition of the albuminous substances of the tissues and especially of the nuclein or nucleins.

2. The excretion of uric acid is increased or diminished by all those factors (diseases, medicines, poisons, etc.) which produce a quicker or slower destruction of the cellular elements of the body, especially of the leucocytes.

3. Ingestion of food, especially of meat, brings about a transitory digestive leucocytosis which is evidently called forth by the nuclein introduced in the food.

4. The amount of uric acid eliminated in twenty-four hours is not affected to any great extent by the diet. There is only this difference that the easily digestible animal albumins produce digestive leucocytosis as well as the formation of uric acid much more speedily than do the vegetable albumins which are difficult of digestion.

When we consider the development of arthritis uratica, evidently there are only two hypotheses possible—either there is an increased production, or a decreased elimination of uric acid by the kidneys. Nearly all the authorities on this subject—Garrod, Roberts, and more recently Pfeiffer and Levison—maintain the latter view. This finds strong support in the fact that in leukemia, where the production of uric acid is very great, as much as 3 to 4 grams a day being eliminated in the urine, arthritis does not occur so long as the function of the kidneys remains normal. Ferguson, of Toronto, Canada, estimated the daily normal output of urea at 363 grains. The investigations of Berlioz, Lecanu, Duckworth, Garrod, Haig, Haycraft, Landois, Heidenhain and Ferguson show that the formation (not the elimination) of uric acid is in the ratio of one to thirty-three of urea. This makes the average daily normal output of uric acid eleven grains. Where the ratio is different it shows either on the one hand that some of the uric acid is being retained in the system, or, on the other hand, that it is being eliminated in excess of its formation, and this excess must come from what has previously been stored up in the body.

When the elimination is deficient, if the blood be rendered acid by the drinking of acid wines or beer, the uric acid is deposited in the form of the biurate. If, on the other hand, the blood be rendered alkaline by a vegetable diet, by the use of mineral waters, or by exposure to wet and cold, these deposits are taken up in the circulation again with the effect of producing severe mental depression, violent headache, and all the symptoms of a uric acid storm.

In a serum rich in sodium salts the crystals of the biurate will form with unusual rapidity. The synovial fluid is especially rich in these salts (0.80%) which serves to explain the occurrence of arthritic phenomena. Moreover, this fluid is contained in cavities where it is little liable to movement or change. That a sedentary mode of life, without bodily exercise, predisposes to arthritis is to be explained, perhaps, by the fact that the synovial fluid in the little used joints becomes more watery, poorer in albumin and richer in sodium salts.

It is not our purpose to enter into a discussion of the innumerable symptoms produced by the retention of uric acid in the system. A long time ago Sir Thomas Watson wrote: "Gouty persons are subject to various ailments which spring from the same fountain as the well-marked paroxysm—derangements of the digestive organs, of the heart and lungs, of the brain and nerves. They often disappear on the breaking out of that disease in the foot." Certainly in this country the typical, normal, acute, true attacks of gout are rare; owing doubtless to the peculiarities of our climate and mode of life, we find far oftener what the writers describe as irregular, anomalous, latent, chronic, atonic, internal, misplaced, atypical and suppressed gout. Especially rare are the classical attacks of gout in American women, although they show frequent signs of an inherited uric acid diathesis in the form of obstinate neuralgias, acid dyspepsia, and what an old friend of ours used to call "lazy livers."

Hardly an organ in the body escapes the influence of this potent poison. Of especial interest are its effects upon the kidneys, the blood-vessels and the nervous system.

Horatio C. Wood, in a lecture entitled "Chronic Contracted Kidney: The Mystery of Its Development, and the Secret of Its Prevention" (*University Medical Magazine*, June 1893) has this to say:

"The second proposition which I desire you to remember in connection with that just enunciated is that poisons formed within the body are capable of acting upon the kidneys precisely in the same manner as do poisons which come from without, and that lithic acid, oxalic acid and probably ptomaines and other organic substances originating in the human system may produce not only albuminuria but also tube-casts. I believe that could we know the life history of cases of contracted kidney whose nature we perchance only recognize when the mischief is too far gone to be undone, it would be found that over and over again in these unfortunate persons, perhaps as the result of a debauch, perhaps as the outcome of an oxaluria, perhaps as the product of a lithemia, perhaps as the work of a poison from without the body, there has been a long series of renal irritations, paroxysms of subacute albuminuria, each one passing away sooner or later, but leaving behind it a minute scar on the structure of the kidneys, and scar upon scar accumulating until at last the whole renal structure has been destroyed."

In 1866, Charcot and Bouchard showed that cerebral apoplexy is caused by the rupture of a miliary aneurism in the brain. These aneurisms result from an arteriosclerosis affecting the cerebral arterioles; and one of the commonest causes for this disease of the blood-vessels is the presence of an excess of uric acid in the blood. It has long been known that gouty subjects are especially obnoxious to cerebral hemorrhage, though no satisfactory explanation could be given to account for this fact. Apoplexy is of course a disease of the blood-vessels and not of the brain, although it is usually classed among the nervous diseases, on account of the symptoms.

Far more important and interesting are the injurious influences of uric acid upon the nervous system, which have been admirably worked out by the French school. Charcot was the first to point out the family relations existing between certain diseases. He makes use of this comparison: "One may consider the uric acid diathesis as forming a tree, the principal branches of which are the gout, articular rheumatism, certain forms of migraine and of cutaneous affections, etc. On the other hand, there is a nervous tree comprising neurasthenia, hysteria, epilepsy, all the hereditary forms of insanity, general paresis, locomotor ataxia, etc. These two trees spring as it were from the same soil, they communicate by their roots, they are so intimately related that one is tempted at times to ask if they are not one tree."

"With this key," M. Charcot continues, "one can comprehend most of the phenomena which present themselves in nervous diseases, and which are incomprehensible without it. When a patient affected with a neuropathy comes under observation, he should be considered as merely an episode of the disease."

M. Bouchard, in his studies of what he calls "diseases of slowed nutrition," arrives at analogous conclusions. The insufficient elaboration of substances in the interior of the cell allows of the accumulation, in the tissues or in the humors of the body, of substances which normally would be metamorphosed; on the other hand, under these same conditions, the nutrition of the cells being imperfect, they functionate abnormally. Under the first head belong obesity, diabetes, and gout; under the second head are included migraine, asthma, the neuroses; and in these last, one is forced to admit a modification in the functioning of the nervous elements. These diseases of slowed nutrition, which are nearly all hereditary, constitute the group of arthritic affections.

It is frequently observed that those who present distinctly the disturbance of nutrition which leads to these diseases, beget neuropathic, hysterical, choreic, migrainous, asthmatic, neuralgic subjects, and those affected with headache during their adolescence. Hypochondria, epilepsy, and mental alienation may also be met with under these circumstances, according to M. Bouchard.

"In the gout," says M. Déjerine, "nervous disturbances of every sort are very common; they occupy a large place in the symptomatology of this affection, and may affect the intelligence, the motility, the general and special sensation. M. Charcot has remarked that in connection with gout, one may encounter disturbances analogous to cerebral rheumatism, acute delirium, insanity and headache."

M. André, of Toulouse, has seen in his practice the children of gouty parents present various nervous affections, hypochondria, neurasthenia, headache, hysteriform disturbances, etc. A man living near Toulouse, gouty and asthmatic, had three children, the oldest of whom died of general paresis at the age of 44, the youngest perished in an insane asylum at the same age, and the second, who is extremely gouty, has been of a violent and vicious disposition all his life.

M. Dieulafoy has shown that cerebral hemorrhage is frequently hereditary. But what constitutes the heredity in these cases is the vascular lesion, which is due to gout. The gastralgias, migraine, asthma, epilepsy, the tics, paralysis agitans, have been noticed in gouty subjects.

Dr. Ménélac Sakorrhaphos, of Athens, has contributed to *Le Progrès Médical*, for Oct. 21, 1893, a masterly article upon this topic, which is characterized by great breadth of generalization and power of clinical analysis. We quote from him at length (original translation):

> We have continued to examine patients exhibiting the clinical tableau of arthritism (and they are by no means rare!), and the surprise we have experienced at finding arthritic maladies in combination with nervous affections, has led us to believe that these two diatheses differ in no respect from one another. Aside from the combination of these two diatheses in the same individual or in the same family, the close relationship between these two morbid states, the etiology, the slow march, certain of the clinical tableaux which are encountered, are evidently the same........
>
> Certainly when one sees hysteria combined with tuberculosis, tabes with diabetes or some other arthritic malady, when science proves the relation of gout to the different neuroses and psychoses; when one observes the arthritic nature of most of those nervous diseases whose slow and progressive march, unless interrupted by causes which we shall examine, inevitably ends in the major neuroses or psychoses; when he observes finally that these two diatheses have a common etiology, and that sclerosis of the viscera is identical in character with the systematic scleroses found in the nervous system, he will no longer see any reason for considering these two morbid conditions as separate and distinct.
>
> Some observers, embarrassed by the plain sight of these two morbid states, arthritism on the one hand and the nervous diathesis on the other, marching side by side in the same family, have endeavored to define a third pathological state, calling it neuro-arthritism........
>
> But we would observe, in the first place, that the arthritic subject is always a neuropath from the beginning to the end of his disease; however, the grave nervous phenomena only present themselves during the period of the full development of the arthritic diathesis, that is to say at the time when the major disturbances of nutrition appear. This is the reason, in our opinion, why diabetes, the gout and other affections of the same category, are so often found associated with grave nerv-

ous diseases. But do not the very symptoms which characterize the first period of arthritism, such as localized spasms, general convulsions, pruritus, urticaria, spasmodic cough, nocturual incontinence of the urine, and many other morbid conditions, indicate sufficiently clearly that the patient's nervous sytem is mainly at fault, as is manifested by the sensory and vasomotor disturbances? Moreover, are not the same disorders found in the psychical sphere! If you will take a little child, the issue of arthritic parents and inheriting the vice of constitution, you will find that these little creatures, wrongly considered by some writers as hysterical, will laugh or cry or fall into a rage over matters which would not so affect healthy children. Their power of attention is defective, they are distraught........

The nervous diathesis is, in our opinion, merely the continuation of arthritism and represents its period of decline.

We divide the march of arthritism into three great periods.

A.—*Period of dynamic disturbances.*—This is characterized by various phenomena which are mild and fugacious from a clinical point of view, and leaving no perceptible pathological change (localized spasms, general convulsions, spasmodic cough, incontinence of urine, mild psychical disturbances, etc.).

B.—*Period of profound disturbances of nutrition.*—This period includes all those diseases, described by Professor Bouchard, under the name of the diseases of slowed nutrition; moreover, arterio-sclerosis being a grave disturbance of nutrition ought to be classed under this category.

C.—*Period of individual degeneration.* (Hysteria, epilepsy, dementia, and other psychoses.)—It is especially during this period, that purely nervous diseases are encountered. The march of arthritism is slow and progressive; it results after long years in the so-called nervous diathesis. As the life time of one individual is not sufficient for the evolution of this disease, it is transmitted by heredity. We relate briefly a few of the many clinical facts which we have been able to collect.

Observation I.—Three generations. The grandfather was bald, rheumatic, affected with hemorrhoids and arterio-sclerosis. Grandmother obese. Two children were born of this union, one of them, aged 55, is tabetic; the other, aged 45, is hemiplegic as the result of a cerebral hemorrhage. The first had epistaxis and migraine during his youth. About the age of 25, he became bald. About 40, the first symptoms of tabes appeared. He has never had syphilis. At present he is completely paralyzed. The temporal artery is tortuous and hard, as is also the radial. The pulse is intermittent. He married a healthy woman, but had no children. The other brother, the hemiplegic, married and had a child, at present 18 years old, who had convulsions during his infancy. At present he is epileptic and his intelligence is very defective.

Observation II.—Three generations.—No accurate information concerning the grandfather. The grandmother had migraine and hemorrhoids. At 30, she was obese and had a transient glycosuria. At 40, she had an epithelioma of the breast and was operated on by Nélaton. She died of uremia. She had two children, one of whom died at the age of 50. He had migraine during his youth, was given to speculating, very ambitious, etc. At the age of 40, he was affected with generalized arterio-sclerosis, with localization in the kidneys and heart; he died from an attack of asystolia. Having married a woman who was obese and had tic convulsif, he had a daughter who had repeated convulsions during her infancy, and who is now, at the age of 20, hysterical. (Hysterical crises, retraction of the visual field, absence of the pharyngeal reflex, hysterogenous points).........

If an alliance is made between two people with an equally marked hereditary vice of constitution, this union will give birth to a being who will inherit the same affection as his parents, or, and this is the rule, a pathological condition more pronounced than that of his parents........

Professor Dieulafoy has mentioned the influence of heredity upon the production of cerebral hemorrhage. Moreover, he has observed that the descendant may be affected by the disease at a much earlier age than his parents. This ingenious observation indicates clearly that a new generation of arthritic origin has much less power of resistance to pathological influences, and that the vitality of the cells which compose the organism, is enfeebled by the inherited constitutional vice.......

One can follow the gradual course of the arthritic diathesis and see its termination in the nervous diathesis in the israelitish race. The Jews, who intermarry on account of their religion, are nearly all arthritics. The gout, diabetes, organic nervous diseases, the neuroses and psychoses, are common amongst them......

Hygienic measures adopted in good time may arrest the fatal march of the disease. The question of environment is then of great importance........

One may say, arthritism—and under this name we include the nervous diathesis likewise—represents as it were the human race in its period of decadence; it is a sign of the approaching end of a family, precisely as an acute disease destroys the life of an individual.

Arthritism is nothing more nor less than a chronic and permanent deviation from the normal type of nutrition. The whole organism is upset by this perturbation, which at the beginning, at least, is not powerful enough to destroy the life of one individual. Little by little the organism accustoms itself to this *modus vivendi*, the cells which compose it, and among them the spermatozoa and the ovules, become altered, and this alteration remaining for a long time in the organism becomes a habit, a mode of being, and as such is transmitted by heredity. Moreover, arthritism being a disease of the nervous system is especially apt to be hereditary.

Equally as striking and radical are the views of Dr. Vigouroux, as expressed in his brilliant monograph, "*Neurasthénie et Arthritism.*" He says (our translation):

Neurasthenic patients are arthritics. The proposition is not new....; but up to the present time it has rested upon clinical, that is to say, debatable, considerations. M. Huchard was the first to announce, ten years ago, the relation between neurasthenia and arthritism. In the *Traité des Nevroses* (by Axenfeld and Huchard) he attributed to rheumatism certain nervous manifestations, and penned the following phrase, reproduced in the recent edition of his treatise on diseases of the heart: '*In most cases neurasthenia is an arthritic neurosis.*' He does not seem, however, to have followed out the therapeutic consequences resulting from this comparison. In his chapter on neurasthenia, he pays no attention to the regime, and the only anti-arthritic medication which he recommends is the prolonged administration of small doses of salicylate of soda. He adds that one should treat the diathesis, which is most frequently arthritic, and sometimes herpetic. In the *Traité des Maladies du Coeur* there are numerous passages which show that he admits the gastric origin of neurasthenia.

We repeat then, neurasthenic patients are arthritic. Granting this, two question present themselves. In the first place, is it necessary to preserve the reserve shown by M. Huchard, and simply to say, most neurasthenic patients? Our analyses of the urine allow of no hesitation in answering this question. *All neurasthenic patients, without exception, are arthritics*.....

There is no distinction to be made between those affected with simple neurasthenia and the neuro-arthritics. The word 'neurasthenia' of itself implies the idea of arthritism.

In the second place, to what extent can the remarkable anomalies of the urine in neurasthenia explain its pathogenisis? ....

The sole characteristic of the urine of neurasthenia is that it is very plainly an arthritic urine. The analyses given are identical with those of arthritism in general, when there is no neurosis present.

The two principal facts revealed by biological chemistry are, that in neurasthenia there is hyperacidity, and that it entails all the consequences of insufficient disassimilation. One can apply accurately to neurasthenic patients Bouchard's observations concerning arthritics, which he sums up in the following propositions:

The nutrition is retarded:

1. When, after the ingestion of a certain amount of food, the organism requires a considerably longer time to return to its original weight than is required in the normal state.
2. When the amount of food necessary to support life—the living ration—is below the normal.
3. When the weight of the body increases under the normal amount of food.
4. When, under the living ration, the amount of excreta is less than normal.
5. When, during abstinence, the diminution in the bodily weight is less than normal.
6. When, during abstinence, the amount of excreta is less than normal.
7. When there appear in the excreta incompletely elaborated products, uric acid, oxalic acid, the other organic acids, the volatile fatty acids.
8. When one or more of the proximate principles accumulate in the body, the alimentation remaining otherwise normal.
9. When there is a greater lowering of the temperature during repose and abstinence, and particularly during sleep, than is found in the normal state. (Bouchard. *Maladies par Ralentissement de la Nutrition.*)

These propositions concerning the weight are only true when there exist no gastric or hepatic complications. When these are present, the living ration and even super-alimentation will not cause an augmentation of weight, quite the reverse.

The hypothermia is evidently the result of diminished oxidation. In neurasthenic patients this result may have a pathogenic influence. Thus the insufficient production of heat brings about compensatory processes which tend to diminish the loss of heat by radiation. Such are the vascular spasms which render the integument anemic and give rise to cutaneous anesthesias or to sensation of cold.

The one conclusion to be drawn from these facts is, that arthritism is a necessary condition to the development of neurasthenia.

On the other hand, Rockwell is of the opinion that lithemia is never productive of genuine neurasthenia. In his preface to the last edition of Beard's work on neurasthenia, he says: "The nervous system is strong enough, and would give no trouble if it were not poisoned by the abnormal products of digestion that enter the blood and circulate freely through every tissue of the body." He admits the occurrence of a combined type of the disease, which he calls "neurasthenic lithemia."

In discussing the differential diagnosis between these two conditions, he lays stress upon the character of the mental phenomena, of the circulation, the tongue, and the pulse.

"Both the lithemic and neurasthenic suffer from mental depression and a profound sense of misery, more marked, indeed, in the former than in the latter condition. While, however, the neurasthenic may suffer from the deepest melancholy, and imagine himself heir to a thousand ills, he becomes the victim, as a rule, of no such irritability and unreasonable outbursts of temper as the man whose brain is actually poisoned by the imperfectly transformed products of digestion.

"In neurasthenia, again, cold hands and feet are not by any means the rule, but in intestinal and liver derangements the nitrogenized wastes circulating in the blood cause, by their irritation, tonic spasm of the arterioles, resulting in the cold hands and feet so bitterly complained of by the sufferer from lithemia. The condition of the tongue is an important diagnostic aid. In lithemia it is coated far more frequently and to a greater extent than in neurasthenia, but in some cases of lithemia the tongue is but slightly affected. It may appear at first sight perfectly normal, and it is only when looked at carefully from the side that an unnatural brownish color is observed. As regards the pulse, it may be said that in lithemia it is slow rather than fast, and in neurasthenia fast rather than slow."

It must be said that Rockwell's conception of lithemia is much narrower than Vigouroux's, since he seems to limit it to intestinal and hepatic derangements. These remarks were written some years ago, before the pathogenisis of lithemia was fully understood. No doubt, also, lithemia is more common in France than in America, owing to intermarriage and the universal use of alcohol.

TREATMENT.

The treatment naturally divides itself into two divisions: the treatment of the acute attack, and the treatment of the diathesis.

Piperazin-Schering seems to give the speediest results in the acute attacks, as the following cases will show:

CASE I.—W. B., a minister, aged 55, of strongly marked uric acid diathesis. Both his father and his grandfather gave unmistakable signs of the same diathesis. He has been subject for years to uric acid storms which are attended with severe sciatica, gridle sensation, burning spots in the limbs, high-colored urine, aching in the loins, injected conjunctivæ, headache, insomnia, pain and sense of fullness in the occipital region, etc. Usually one of these attacks confined him to the house for two or three weeks. He was accustomed to take a mixture of colchicum and iodide of potassium. Under the use of piperazin his urine cleared up in 48 hours and he experienced great relief. The remedy was continued for some time, with the idea of eliminating the uric acid stored up in his system. Several times since he has had threatenings of an attack, which have always yielded promptly to the piperazin-Schering, 15 grains daily in copious draughts of water.

Case II.—D. C., aged 28. His father was obese and suffered for years from the asthma; his mother has tophi and other unmistakable evidences of gout. The patient has a "lazy liver". When he first came under my care he would have every three or four weeks an attack characterized by headache, fever, pains in the limbs, nausea, vomiting, general malaise, high-colored urine, vertigo, insomnia, anorexia, tinnitus aurium, muscæ volitantes, etc. Under a restricted diet and systematic exercise, these attacks nearly disappeared. I was called to see him in one of them recently, when it occurred to me to try the effect of piperazin. It relieved him much quicker than anything else he had ever taken, reducing the attack to one-third or one-fourth its customary duration.

Case III.—O. W., a clannish family in which there had been a number of intermarriages, which had served to intensify the prevailing uric acid diathesis of the race. He had been for years a terrible sufferer from insomnia and depression of spirits. Every few weeks he would have an attack accompanied by pains in the calves of the legs, high-colored urine, chilliness, coldness of the extremities, and intensification of his mental symptoms. After trying various remedies, and among them salycilate of soda, which some have lauded in such conditions, I finally prescribed piperazin-Schering, with excellent effect. It promptly relieved the pain and gave him what he called a "very restful feeling." Under a vegetable diet, exercise and hydrotherapy, he improved greatly.

Treatment of the Diathesis.

This is entirely hygienic and dietetic. These patients should keep perpetual lent.

They are like a smoky flue; everything must be done to increase the draught.

The indications may be summarized as follows:

A non-nitrogenous diet.

Abundant exercise in the open air.

The free use of water both internally and externally.

To each tumbler of drinking water should be added a little concentrated solution of piperazin (15 grains of the drug, dissolved in 1 ounce of water, to be used up each day); this gradually eliminates excess of uric acid, and aborts further diathesis.

215 W. Chestnut St., Louisville, Ky.

COCCYGODYNIA—ETHER SPRAY.

By E. Macfarlan, M. D.

By the term coccygodynia is conveyed to the mind of the practitioner and the student the misleading inference that in every such case there will be found a pathological condition of the coccyx, whereas observation teaches us that in the majority of cases the affection is but a reflex neuralgia due to disease of adjacent parts; therefore the term coccygodynia can only be accepted in a nosological sense.

The literature of this disease is rather scant, and only recently has it received much attention. As far back, however, as 1844 the eminent Dr. Nott gave a good description of the disease, and in 1861 Simpson of Scotland and Scanzoni of Germany wrote about it; and more recently Dr. T. G. Thomas devotes several pages to the description and treatment of this affection in his work on "Diseases of Women"; Dr. J. Mathews Duncan in his published "Clinical Lectures on Diseases of Women" speaks of it under the head of "Painful Sitting."

But the foregoing remarks I have only intended as prefatory to the following report of a case of coccygodynia of eight months duration that came under my care about one year ago.

Mrs. M. R., widow, age 42, large and fleshy, had suffered intensely from persistent pain in the lower part of the back for eight months; she could neither sit, stand, nor walk without suffering severe pain, and for two weeks prior to seeking professional advice had been compelled to keep in bed, but could lie only on her right side. Having made thorough inquiry into the history of the case, and questioning Mrs. R. as to whether the sacrum or coccyx had been injured at any time, and her answer being in the negative, I proceeded to make a thorough physical examination to ascertain the real condition of the parts at seat of pain. I could not find any indication of the parts being in a diseased condition; there was only that sensitive condition always found in cases of coccygodynia on making firm pressure, even when there is no pathological condition. Not finding here any explanation of the severe and persistent pain experienced by the patient, I next made a careful exploration of the uterine and ovarian regions, and here discovered a sensitive uterus and a highly sensitive and congested right ovary; thus I was enabled to trace the coccygodynia as a reflex neuralgia.

In my treatment, I of course proceeded to remove the diseased condition of the ovary; this I succeeded in effecting within five days; but notwithstanding the removal of the apparent cause the coccygodynia persistently remained. This I conceived to be due to the long continued morbid reflex upon the tissues and nerves connected with the sacro-coccygeal parts.

In beginning my treatment of the coccygodynia, I first gave attention to the organs of digestion and corrected a sluggish condition of the liver; then began the use of the present anti-neuralgics, such as phenacetin, antikamnia, phenocoll, etc., but these only afforded slight relief. I next tried morphine sulph. hypodermatically, and also ergotole, but only with temporary relief. The ergotole, however, given internally in doses of five drops every three hours had a beneficial therapeutic action on the affected ovary. All of the above mentioned anti-neuralgics having failed, I now put on my thinking cap, and in a short time succeeded in capturing an idea.

It occured to me that ether sulph. spray had been used with marked success in several obstinate cases of facial neuralgia; and *ergo*, as a corollary, I argued, if remedial as a local application in such cases, on a fair trial in other forms of neuralgia, like, for instance, the case I had in hand, it might prove equally beneficial, or in other words, ether spray might prove an effective thereaputic agent in coccygodynia of reflex origin; and I at once determined to make a practical test at my visit next morning.

Before making my first trial of the spray, I thought it proper to explain to my patient what I was about to do, and at the same time spoke confidently of the benefit I thought and hoped she would obtain by applying the ether spray directly to the seat of pain. She at once gave her consent and I immediately sprayed the entire sacrum and coccyx, keeping at it for about five minutes. This first trial seemed to intensify the neuralgic pain, but within an hour this effect passed off and then came relief lasting through that day and night, enabling the patient to enjoy several hours of refreshing sleep, and when the pain did return it was much lessened in severity.

My first trial of the spray was made at 10 a. m., and next morning at the same hour I made the second application, and with the happy result of almost immediate relief from pain; in fact, the pain ceased before I had finished spraying, and the patient enjoyed a comfortable day and all-night sleep for the first night in eight months. I now felt my victory had begun, and next morning after the third application it was made complete. I continued the daily use of the ether for a week, and the coccygodynia was conquered.

And now at this writing, many months since my professional visit to Mrs. R. has elapsed, and as I have been called at various times to other members of her family, I know she has not had any return of the disease.

314 W. 126th St., New York.

FRENCH THERAPEUTIC NOTES.

By Thomas Linn, M.D.

Brown-Séquard's Organic Liquids.—Since the death of Professor Brown-Séquard a few months ago, a number of French writers are trying to give his method a death-blow; among them is Dr. Albert Robin, who pretends that the organic liquids extracted from glands have therapeutic power only owing to the glycerophosphates found in them, and he proposes to use glyco-phosphatic medication. These glyco-phosphates have been known for the last forty years and were mostly forgotten. It is quite probable that they accelerate general nutrition by their intermediate action on the nervous system, and given by hypodermatic injection they produce an effect similar to the organic liquids, simply on account of the organic phosphorus contained in them; and in certain cases there may be an advantage in using a definite product which is durable, to that of the new organic liquids which have an uncertain, unknown and easily altered composition. But to say that the glyco-phosphatic action is the only one obtained in using organic liquids, we cannot believe, for there are now statistics of enough cases of the use of organic liquids that have caused complete cures, not to allow this excellent tonic medication to be abandoned at this stage of its use. There are many who believe that Brown-Séquard has left a wonderful tonic medication behind him, of which the last has not been heard nor seen. It is still an open question, whether this system will not yet become widely used, and redound to the great physiologist's memory quite as much as his wonderful discoveries in nervous physiology.

Treatment of Hepatic Colic.—M. Ferrand reports the result of some experiments with glycerin in this trouble. He concludes that glycerin administered by the stomach is absorbed in nature, as it can be found in the blood coming from the hepatic vein. It is an excellent cholagogue, very useful in the treatment of hepatic colic; doses of thirty to thirty-five grams have stopped a crisis. Five to fifteen grams of glycerin, given daily in a little alkaline water, has warded off attacks. Glycerin, without being a lithontriptic, is also useful in biliary lithiasis.

Anemia of Nasal Origin.—Dr. Chabory is convinced that this form of anemia is very common. (Perhaps it would be particularly so in the United States, where you have so much nasal catarrh.) The causes of this anemia are various; the obstruction of the nose by catarrhs and deviations of the septum which diminishes hematosis and prevents the proper formation of the red globules of the blood. Buccal respiration does not give pure air to the lungs, and it is not warmed by passing the nares. Epistaxis is also more or less common, in small or great quantity in such cases, and the catarrhal products often become so great in quantity that their manufacture and loss become a regular spoliation of the organism.

Infectious fevers and inflammation of the pituitary membrane are also causes of this anemia; malignant tumors and all the tumors of the nose constitute part of its etiology, and the secondary troubles of the respiratory organs as well as the nervous system and digestion are part of its proper causes.

Treatment of Nasal Troubles.—While upon this part we may mention the ideas of the well known Dr. Raugé, who practices at Challes, where many of these diseases are treated. Dr. Raugé has tried almost everything for the relief of nasal catarrh, and has concluded that naso-pharyngeal irrigation is the best, *when given under certain conditions.* In place of using a quart of liquid, he uses 20, 30 to 50 quarts of water!!!

This very large quantity of liquid is easily passed by patients after a little practice, and they do not seem to be hurt by this naso-pharynx inundation.

As to the danger to the middle ear, Dr. Raugé does not believe in it at all; he declares that the ideas in regard to this, that have been expressed, are false; he has made many experiments with these large nasal douches and never had the slightest difficulty or accident to arise from their use. Employed with prudence at a fair pressure, this profusion of liquid does not do the slightest harm, and does a great deal of good. It is the best mechanical means of cleaning out the cavity, and will cure fetid nostrils while it removes all crusts that keep up the morbid state and cause atrophy of the walls of the nasal cavities. It remains, in fact, according to this author, the best palliative we have for these conditions.

A Cheap Vapor-bath.—A very ancient method of artificial sudation is that to be obtained by putting into an iron pot a little lime, and pouring over it a glassful of cold water. The utensil is then passed under the bed clothes, and the slaking lime gives off quite an abundant steam vapor, hot enough to cause sweating. This cheap method is used in this country to great advantage.

Rhythmic Traction of the Tongue in Asphyxia and Sudden Death.—The new method of Dr. Laborde, which consists in making rhythmic traction on the tongue to bring about the respiratory reflex action, has been tried a great deal in France in the last two years in all sorts of cases of asphyxia, by drowning, electric shock, lightning-stroke, and in the cases of apparent death in the newly-born. Some sixty-three cases are given where patients were recalled to life by this method, and as it is so simple (using an ordinary tongue forceps such as is on hand during chloroform or ether inhalation, the tongue is well pulled forwards and regular rhythmical movements are given to it), it is proposed to issue some simple directions that can be posted in every hospital and be in the hands of every midwife, or anyone who may be liable to see asphyxia, such as those who give anesthetics.

Treatment of Phthisis.—There is a good deal said now in France of the action of mint in tuberculosis (the julep-drinkers can cheer up, only it is combined with creosote). The mentha used is what the French call *menthe poivrée*, or the ordinary field-mint; this is simply put into hot water and prolonged inhalations taken of the steam; and besides a mixture is given internally, of creosote, glycerin and chloroform, which has one per cent. of mentha piperita in it.

Some excellent results are obtained in pulmonary tuberculosis by this method of treatment, twenty-nine cases of cure being reported from one authority.

The action is superior to the injection of menthol which is obtained from the Japan and Chinese mints, and used in hypodermatic injection in combination with thymol, creosote, etc.

Aix-les-Bains, France.

HEPATIC DISORDER, COMPLICATED BY INFLUENZA.

By T. W. Moore, M. D.

W. H. M., aged 41,—American—White —Married—Farmer.

Family History: Parents living, and in good health. One sister died in her thirty-seventh year of "lung trouble." Has three children, aged 13, 11 and 2 years, all healthy.

Personal History: Denies venereal disease. Had "fever" at fifteen. Has had hemorrhoids for ten years. About two years ago he suffered with influenza, which was followed by eczema (papular) and severe hemorrhage and pain from hemorrhoids, which lasted about three months and ceased troubling him seriously without treatment.

Last December the hemorrhoids became painful and bled after defecation. In January he had influenza again, which left him greatly prostrated. His condition grew worse until March 7th, 1894, when I first saw him; he then stated that he was very weak, had no appetite, suffered with constipation, constant bleeding from piles, insomnia, and had about twenty small boils.

I found him little emaciated, considerably bronzed; skin dry and "itched" constantly; conjunctivæ pearly, lips and mucous membranes pale; tongue pale, flabby and slightly furred; muscles flabby; wrists swollen. Heart weak with hemic murmur; pulse 102, and weak, dropping a beat, usually about the seventh. Lungs clear, respiration 32, temperature 99.4° F.

Liver dulness began in the sixth interspace and ended at costal margin; not enlarged transversely, edge not palpable. I could not elicit any tenderness over abdomen or splenic enlargement.

Urine 1.017, straw colored, acid; no albumin. Several examinations did not materially vary. Patient thinks he passes about normal quantity.

Treatment: Digitalis gr. 1½ every four hours; Basham's mixt. with gr. $^1/_{30}$ strychnine after meal; sodium brom. dr. ½ and tr. hyosciam. min. xx at bed time. Astringent suppositories with iodoform night and morning; aloin and ipecac at bed-time. Liquid diet.

Patient's appetite improved, hemorrhage ceased; skin and piles became more annoying, producing constant restlessness until he became semi-delirious; morphine was given, which quieted him. This condition continued, with fluctuations in pulse from 118 to 78; respirations 24 to 32, temperature 99 to 100.5; pulse lost its intermittent character; boils gave place to papular eczema.

April 5th, at 12 m.—I stopped all medicine save suppositories, and gave nuclein tablets, one every 3 hours, and liq. arsenici et hydrarg. min. ii p. c.; pulse 87, resp. 26, temp. 99 8, skin moist, urine normal, bowels regular.

April 6th, 12 m.—Pulse 82, resp. 21, temp. 98.6; other symptoms unchanged. Did not sleep but was quiet during the night.

April 8th, 5 p. m.—Pulse 87, *full* and regular, could notice pulsations in the smaller arteries over the body. Hemic murmur present, heart action forcible. Temp. 101, resp. 24. Felt better he said. Skin very dry, but clearer; appetite good. Piles less painful. Ordered nuclein tablets every 3 hours, and sodium bromide and tr. hyoscianus as before.

April 10th, 11 a. m.—Pulse 82, murmur still present. Temp. 99.8, resp. 18, bowels regular (without laxative pill). Skin and hemorrhoids not annoying him so much. Slept yesterday afternoon, all night, and two hours this morning. Looks and feels better. Other symptoms unchanged.

April 13th, 11 a. m.—Pulse 76, resp. 19, temp. 98.6. Skin moist and clear, but still irritable; two more boils (small). Piles less troublesome, and patient states are "drying up." Mucous membrane pale, conjunctivæ bluish, bowels regular, kidneys acting normally. Complains of hot and cold spells, which I attribute to their inability to keep the room of an equable temperature. Is taking nuclein tablets, one every two hours (m. $^{48}/_{150}$) until six are taken daily, with suppository at night.

April 15th, 6.15 p. m.—Resting quietly; slept well last night. Pulse 82, resp. 20, temp. 100. Bowels constipated slightly; skin dry and less irritable; several pustules have developed.

April 17th, 6 p. m.—Pulse 75, resp. 18, temp. 99.8; tongue furred, moist; skin moist and very irritable. Took pills (some proprietary) for bowels which produced a slight diarrhea; slight tenderness over lower border of liver in nipple line; no tumor or nodule perceptible. Did not sleep well. (Was out of doors and I think overtaxed his strength.)

April 19th, 4 p. m.—Skin jaundiced and intensely irritable. (The family are noted for a peculiar sympathetic irritability of the skin. His father tells me that after the sting of an ordinary bee or wasp his entire integument becomes painful to the touch, lasting for forty-eight hours, being sufficient to confine him to his bed.) Pulse 72 weak, resp. 20, temp. 99.2. Kidneys are not acting; has passed 20 ounces of urine in 24 hours. Wrists swollen. Gave in addition to other treatment a diuretic of digitalis gr. $1\frac{1}{2}$, calomel gr. $^{1}/_{10}$, pot. nitrate gr. $1^{1}/_{2}$ every 4 hours. Bowels acting regularly. No albuminuria.

April 22d, 6 p. m.—Skin is more yellow and still irritable. Nurse says he sleeps well, which patient denies. Urine increased in quantity to 35 ounces. Pulse 66, resp. 22, tongue moist and slightly furred. Nuclein tablets exhausted. Gave ox-gall gr. ii, ext. nucis vom. gr. $^{1}/_{4}$, and pulv. ipecac. gr. $^{1}/_{2}$, *with meals*, and $^{1}/_{32}$ gr. each bromide of gold and arsenic.

May 2d.—Continous improvement to date. Patient stays up all day and walks about the house.

Everett, Pa.

*CASES OF DELAYED UNION IN FRACTURE.**

By T. G. Morton, M. D.
Surgeon to the Pennsylvania, Orthopedic, and Jewish Hospitals; Professor of Orthopedic Surgery in the Philadelphia Polyclinic.

In these days of antiseptic surgery we are perhaps a little too hasty in regard to the treatment of delayed union in fractures, and do not give Nature time to effect repair. The length of time taken for repair was unusually long, yet the result in both cases here reported has been perfect.

Case I. *Delayed union in a fracture of the femur.*—(Notes of Dr. Wm. H. Shipps, of Bordentown, N. J.) On January 20th, 1893, L. M., a young woman, seventeen years of age, while coasting was violently thrown from a sled, sustaining a fracture of the right femur at about the junction of its middle and lower third. She was at once carried to her home, placed upon a firm mattress and sandbags and extension by weight and pulley employed. The patient, an intelligent girl, recognized from the start the importance of keeping the fragments in position, and labored in every possible way to avoid disturbance of the limb; so determined was she in this respect, that she avoided in so far as possible, a regular evacuation of the bowels, although assured of the folly of such a course. Having a most capricious appetite, it was difficult for the first six weeks to get her to take a sufficient quantity of nourishment, although the necessity for this important aid in bone repair was constantly urged upon her.

At the end of four weeks the dressings were removed and the limb carefully inspected. No shortening was detected, but to my chagrin, no attempt at union had taken place, notwithstanding the parts were in perfect apposition. The dressings were carefully re-applied.

On March 20th, two months after the injury, an examination showed entire absence of bony union. At this juncture I requested Dr. Morton to see the case with me. It was agreed to resort to daily massage of the entire limb, especially in the vicinity of the fracture, and to lessen the amount of extension. The limb was also encased in a firm dressing made of two Russia felt splints; a posterior one, extending from the great trochanter to within six inches of the ankle, an anterior, extending the entire length of the thigh, firmly held in place by a roller bandage. Four weeks later the patient was allowed to get out of bed daily and walk about on crutches, care being taken that no weight be borne upon the limb. This plan of treatment was faithfully carried out, the appetite of the patient in the meantime materially improved.

In the course of three weeks the circumference of the limb had visibly increased and an evident attempt at bony union noticed.

From this on the limb gradually improved in size and strength, until at the expiration of eight weeks from the commencement of massage, at which time Dr. Morton again saw the case, consolidation was complete. The dressings were continued for a few weeks longer, when a single roller bandage took the place of splints. Careful measurement of the two limbs at this time failed to show any appreciable shortening. Altogether the case made a most satisfactory recovery.

---

* Read before the Surgical Section of the College of Physicians, Philadelphia, March 9, 1894.

CASE II. *Delayed union in fracture of the leg.*—On August 1st, 1893, Captain A. S., aged fifty-one years, while at Ivigtut, South Greenland, in command of his vessel, received an injury to the right leg by the fall of a bulk-head or partition which separated the cargo of kryolite from the ballast; a medical man from the shore who was summoned, found the left leg seriously crushed, and an oblique fracture of both bones about the junction of the middle and lower third; he applied temporary pasteboard splints, and the patient was hoisted from the hold. Four days later, bandages, pasteboard splints and a plaster dressing were applied.

Three weeks later the swelling of the limb had so subsided that he observed not only a considerable movement, but a grating of the bone; six weeks subsequent to the injury the dressing was removed, when it was found that there was little if any union; posterior board splint was applied, and two weeks later he left Greenland and arrived in Philadelphia on October 17th, seventy-eight days after the accident; he then entered the Pennsylvania Hospital. General condition good. The limb was greatly swollen, skin dry and rough, evidently no attention had been given to the condition of the circulation, for the limb had not been out of splints for many weeks, and had not been bathed since the accident; there was little if any effort at repair in the fracture. Attention was first directed to improving the circulation of the limb by soaking in warm water and massage; fracture box; subsequently Russia felt splints; finally a brace was applied. He was discharged December 11th, 1893, with considerable union, which was not firm until the close of January, when he was able to walk without any support.

1421 Chestnut St., Philadelphia.

*EXHIBITION OF A CASE OF AKROMEGALY.**

WITH REMARKS ON TREATMENT BY DESICCATED THYROID GLAND.

By SOLOMON SOLIS-COHEN, M.D.,
Professor of Clinical Medicine and Therapeutics in the Philadelphia Polyclinic, etc.

This case is brought before the Society in order to exhibit some structural changes not found, or at least not recorded, in every case of akromegaly, and to call attention to the apparently good results of treatment with desiccated thyroid gland.

The patient, who is some fifty-two or fifty-three years of age, applied to the Philadelphia Polyclinic about eighteen months ago for relief from an excruciating headache, which had for many months been so intense at times as to prevent his lying down, pressure on the scalp increasing the pain. Attention was at once attracted to the peculiarities of facial structures presented, and further examination demonstrated the characteristic curvature of the back and enlargement of the hands and feet. Photographs of the patient taken twenty years ago and six years ago respectively, bear out his statement that his features have materially altered within the last four years, although the later photograph shows the beginning of the change.

He has had to enlarge his hat-band twice, and his shoes twice within three years. The shoes are a little longer but much broader than formerly. The hands are broadened rather than lengthened; the fingers not exactly "sausage-shaped," but thick and clumsy. Distortion of the joints is to be attributed to his occupation, and probably antedates the development of the akromegalic condition. Part of the coarseness of the skin of the hands may likewise be due to occupation. His hands to-day, however, are smaller than when he first came under treatment, as shown by our tracings and measurements, and also by his statement that a pair of gloves bought

---

* Read before the Philadelphia County Medical Society, April 11, 1894.

"some years" ago, and too small for him last year, can now be worn.

The enlargement and projection of the superciliary ridges, the lateral projection of the malar bones, the broadening and deepening of the chin, give the face the characteristic lengthened elliptical outline. The great enlargement of the nose; the thickening and projection of the lips; the heavy folds, deep furrows, and somewhat greasy texture of the skin, especially of the forehead; the stiffening and projection of the auricular cartilages, complete the picture. The lower jaw does not, however, project beyond the upper jaw. The teeth are bad. The tongue is thickened and deeply fissured. The voice is deep and has a monotonous quality, the latter only partly attributable to his "boilermaker's deafness." The laryngeal and tracheal cartilages are almost if not completely ossified. The thyroid gland cannot be demonstrated. The forward thrust of head and neck from curvature of the cervico-dorsal spine throws the clavicles well out from the windpipe, leaving a great hollow just above the sternum. The clavicles are enlarged, the scapulæ are enlarged, the ribs are broadened and apparently in contact, and the costal cartilages seem to be ossified. In consequence, although the narrowing of the chest—an apparent lateral compression—and the percussion phenomena show absence of emphysema,, it will be observed that his breathing is scarcely at all thoracic. There is an almost inappreciable rise and fall of the clavicles, showing slight vertical motion of the thorax as a whole, and on great inspiratory and expiratory exertion an expansion of one-half to one centimetre can be determined at the nipple line. Breathing is almost exclusively abdominal. This shows, as did my previous case, and some cases of Dr. Dercum's and others, that the disease involves the bones of the thorax as well as those of the extremities.

Our patient is becoming feeble; his muscles are wasting, though as yet electric examination shows only quantitative change. He has vasomotor phenomena—flushing, occasional vertigo, and polyuria. The urine has been deficient in solids, but has not contained sugar or albumin. We have not, indeed, demonstrated anything abnormal in it. This I attribute, however, to defective methods of examination. I have no doubt that careful chemical analyses will show in the urine the results of altered metabolism. Since treatment with thyroid-powder was instituted the quantity of urinary water has decreased and the urea-content has risen. Ordinarily the thyroid preparation increases both water and solids. Superficially the diminution of polyuria by a diuretic would seem to be an illustration of the so-called "homœopathic law." A moment's reflection, however, shows the action to be simply a correction of disordered metabolism, through which the production of toxins giving rise to polyuria is diminished. Another result of the administration of the thyroid-powder has been to completely relieve the distressing headache.

At one time, after a long absence from the clinic, he returned complaining of violent sciatic pain. It failed to yield to ordinary measures, but disappeared after recourse to thyroid medication. Five grains of the preparation of desiccated sheep's thyroid, exhibited by me to the Society last year, was given in capsule every morning.

Upon the somnolence, however, no effect has been obtained. The patient can still go to sleep upon the slightest provocation—indeed, without any. He falls asleep while waiting his turn at the dispensary, and frequently missed appointments through sleeping in his chair over the time set. He says that he can keep awake, however, while at work; but as he can no longer do the hard work to which he has been accustomed, he has not for some time had steady employment. Dr. Jackson examined his eyes, and found no lesion of the fundus and no error in the visual field. This goes to confirm the view that hemiopia and other visual errors are merely secondary phenomena, due to pituitary enlargement, and that the latter is not necessarily a feature of the pathologic complexus. I am, indeed, inclined to believe that early treatment with thyroid preparations will entirely prevent overgrowth of the pituitary body, embryologic analogy seeming to indicate that it is an attempt at compensatory hypertropy, ill-directed and baneful only by reason of the altered position of the structure.

Selections.

EXTRACT OF BONE MARROW IN THE TREATMENT OF ANEMIA.

By J. Dixon Mann, M.D. St. And., F.R.C.P. Lond.

The red marrow of bone being probably the chief agent in promoting the development of red blood-corpuscles, it seemed feasible to suppose that an extract of this substance, if introduced into the human organism while in an anemic state, might act as a stimulant to the formative process and increase the rate of production of the red corpuscles. In adult animals—as the ox—red marrow is limited to the larger bones of the trunk, the thick parts of the skull, and the heads of the long bones; the shafts of the latter contain yellow marrow, which is chiefly composed of fat. In young animals—as the calf—red marrow is more abundant and may be found in the shafts of the long bones as well as in the parts just named. As the tissue-forming power in young animals is more active than in older animals the bones of the former are preferable as a source of marrow extract. To prepare the extract the heads of the long bones, obtained from recently killed animals, with other portions of bone which contain red marrow, are broken into small pieces and digested in glycerin with frequent agitation. When the extraction is complete—several days being required—the extract is filtered off and is ready for use. It is red or reddish-brown in color, and is devoid of any unpleasant taste or odor. It may be given in teaspoonful doses once or twice a day either out of the spoon or spread between thin pieces of bread.

The first case in which I tried the extract was that of a little boy, the subject of hemophilia. This child had repeatedly been in the hospital under the care of one or the other of my colleagues, or of myself, for attacks of hemorrhage. On each occasion the bleeding ceased; but the patient never lost the pallor of pronounced anemia, although he was treated with iron, cod-liver oil, and all kinds of appropriate nourishment. The last time that he was admitted, the red corpuscles were counted after the hemorrhagic symptoms had subsided, and were found to be 3,800,000 per cubic millimetre. The patient was then (Sept. 13, 1893) put on marrow extract without any other treatment, and after an interval of three weeks the corpuscles were again counted; they now numbered 4,190,000, and one month later they reached 4,400,000. Coincidently with this increase there was a marvellous improvement in the appearance of the child; his face acquired an amount of healthy color never previously observed during his many visits to the hospital.

In a second case, that of a young woman, twenty years of age, with long-standing anemia, the corpuscles numbered 3,700,000 per cubic millimetre; after taking the marrow extract for three weeks they increased to 4,000,000. She then left the hospital. In another anemic girl the increase in nine weeks was from 1,350,000 to 3,680,000. A man was admitted for profuse hematemesis; after the bleeding ceased the red corpuscles were found to be reduced to 1,070,000 per cubic millimetre. He was put on marrow extract without other treatment, and, when counted on the fifteenth day, the corpuscles numbered 3,050,000. I am indebted to our house surgeons, Messrs. Newby and Brown, for these observations. I am encouraged by these and many other favorable results to direct the attention of the profession to marrow extract as an agent capable of affording, to all appearance, valuable aid in the treatment of anemia, and also of oligemia due to loss of blood from causes such as placenta previa, hæmorrhoids, and wounds.—*The Lancet* (Chicago Reprint).

THE AMERICAN THERAPIST.

A Monthly Record of Modern Therapeutics,
WITH PRACTICAL SUGGESTIONS RELATING TO THE
CLINICAL APPLICATIONS OF DRUGS.

JOHN AULDE, M. D., - - - - EDITOR.
1411 WALNUT ST., PHILADELPHIA, PA.

CONTRIBUTIONS are solicited from all parts of the world Translations will be made without expense to the author, and when necessary to elucidate the text, appropriate illustrations supplied free of charge. Articles contributed exclusively to this Journal will be liberally paid for, or reprints furnished, provided a request for the same accompanies the manuscript.

Subscription Price, - - $1.00 per annum.

PUBLICATION OFFICE, 25 BEEKMAN STREET, NEW YORK.

Address all communications to
THE AMERICAN THERAPIST,
P. O. Box 1170. New York City.

Vol. II. JUNE 15th, 1894. No. 12.

Editorial.

IS LEUCOCYTOSIS DEFECTIVE IN TUBERCULOSIS?

The above caption forms a most important question both for the physiologist and the clinician. If answered in the negative, much of the work which has been done in the past must be set aside as worthless, since it has been fully demonstrated that there is a leucocytosis that contributes to maintain a normal health standard. If answered in the affirmative, then we have every reason to believe that further study and investigation in regard to the nature and etiology of the disease-process will better enable us to treat it successfully, at least from the standpoint of nutrition.

These preliminary remarks seem to be called for, owing to the dense ignorance which still pervades the minds of those who are supposed to be well advanced in relation to the theories of disease and its treatment. This question was recently put to a physician of good standing, who has for the past ten years at least been devoting the greater portion of his time to the study and treatment of tuberculosis, and for reply, the writer was greeted with a cynical smile and the remark, that while he knew what was meant by tuberculosis he was not familiar with leucocytosis, and would have to "give it up." Like the man who applied for a certificate to teach school, on being asked if he was familiar with mathematics, said, "No I am acquainted with Tom and Bill Mattocks, but don't know the old man." It does seem a trifle strange that men should talk about "nutrition" when they do not have the slightest conception of the first principles connected with the phenomena incident thereto.

When a person sits down and eats a hearty meal, there is a rapid increase in the number of white blood-corpuscles. This is known as "digestive leucocytosis." When a person meets with an accident, such as a bruise for example, there follows swelling, redness, etc., and this is called "inflammatory leucocytosis." In what might be termed *normal* fevers, we are warranted in assuming that there is always a leucocytosis; and this is probably true in regard to tuberculosis, viz., that in the beginning, and probably from time to time as the disease extends, there is set up an inflammatory leucocytosis. But the question is not, Have we a deficient leucocytosis? There is a difference between a defective and a deficient leucocytosis, and it is probably the former that is present in tuberculosis. This conclusion is reached from the facts gained in clinical studies of the disease and from our knowlede of physiology.

Now, admitting that leucocytosis is defective in tuberculosis, What is the cause? The function of the leucocytes is to assist in maintaining an antiseptic condition of the blood, through the activity of their nuclei, and, of course, when the digestive apparatus is at fault, there will necessarily be an absence of suitable pabulum for these bodies to subsist and retain their integrity. If we could, in addition to the usual food, find some medicine or remedy which would stimulate leucocytosis, what an achievement it would be for modern science! The modern physician has been forced to learn that medicine does little for his patient unless he can maintain the nutrition; but in order to understand this matter more fully, he will be compelled to go farther into the investigation than proved satisfactory ten years ago. Then it was taught that digestion was a process of diffusion and subsequent absorption. Now it is known that this is a far more complicated process, and is involved in the mysterious activity of the different cells in connection with the secretion from the various glands. It is this process which Professor **Bartholow** was accustomed to refer to as "the primary assimilation." Between this and the "secondary assimilation," that is, the reconstructive processes by which the food is converted into tissue, we encounter "digestive leucocytosis," and thus it will be seen how interdependent are these various functions relating to nutrition. It will be apparent also that much is likely to be overlooked when we speak merely of the "function" of nutrition, since this function embraces a wide range of activities on the part of certain structures, all dependent upon the normal activities of their respective cells. When digestion is impaired, digestive leucocytosis is imperfect; and when this is imperfect, normal leucocytosis is diminished, thus lessening the natural resistance of the organism; and such, we may infer, is the condition in tuberculosis, viz., defective leucocytosis.

VOLUME II.

With this issue the American Therapist closes its second year successfully. An extended review of what has been accomplished during the past year seems superfluous, and would smack of self-praise. The journal has continued consistently on the original lines, has published many notable original articles, furnished desirable facts and information, presented a well selected review of current literature, and helped to advance therapeutics. The record is contained in 364 pages of clean, original and interesting text, constituting a handsome volume which will grace any medical library and prove valuable for reference.

An index to the contents of Vol. II will be ready for distribution by July 1st, and copies will be mailed to all subscribers promptly.

EDITORIAL NOTES.

Society Meetings.—The annual meeting of the Pennsylvania State Medical Society was held in Philadelphia about the middle of May, and in point of numbers, scientific work and social attractions, was a pronounced success. Nearly five hundred members were registered, and although there were so many papers on the program that not more than one half of them were reached from day to day, the meeting adjourned with the best of feeling prevailing. Resolutions strongly endorsing and supporting the Code of Ethics were passed, and all delegates to the San Francisco meeting of the American Medical Asssociation were instructed to vote against revision.

The American Medical Association, at the time of writing, is in session at San Francisco, and from accounts so far received, there is every probability that the meeting will be harmonious and prosperous, and that the work accomplished will reflect credit upon the profession of the whole country. No little excitement has been created by the proposed revision of the Code of Ethics, but judging from the mild and conciliatory tone of the President's address, we are led to infer that everything will be done with decency and in order. Much credit is due Dr. Plummer, Chairman of the Committee of Arrangements, for his indefatigable efforts to render the visit of members from a distance both pleasant and profitable. It is but right and proper, however, to mention the fact that his labors have been actively seconded by the whole profession of the Pacific coast, and we have no doubt, therefore, but that delegates on their return will be loud in their praises of California and all that belongs thereto.

The Association of American Physicians and affiliating organizations held their triennial Congress at Washington in the latter part of May, and from accounts published, we are led to infer that this meeting was even more successful than any previous one. It is certainly an encouraging indication in respect to the growth and advancement of medical science, that we can afford to have two National organizations in this country; and while this condition of affairs is well calculated to develop a rivalry, we venture the opinion that it will be only such rivalry as naturally arises from a desire to accomplish the most in the direct line of medical enlightenment, the object of both being the advancement of a common cause.

The Eleventh International Medical Congress was held in Rome, Italy, in the latter part of April, and in point of numbers was by far the most successful gathering in its history; unfortunately, however, as much cannot be said in regard to the work accomplished, since we learn that the scientific features as well as the social management were very defective. This, however, was not altogether unexpected, owing to the large number of interests involved, and with attendants from so many different countries, many of the delegates, especially those from the United States and Great Britain, being unable to take a very active part because of the great preponderance of those who did not understand their language. Such misadventures cannot be overcome, and the probabilities are that in future, American delegates will attend simply with the expectation that they can register, thus entitling them to the honors, and in addition thereto, they will have the privilege of depositing their contribution for publication in the regular way through the transactions of the congress.

Dr. Emory Lanphear has been called to the chair of Professor of Surgery in the St. Louis College of Pharmacy, and has consequently removed from Kansas City to St. Louis. The *Medical Index* has been sold and will continue publication in good hands from Kansas City; Dr. Lanphear will continue his editorial work as editor and manager of the St. Louis *Clinique*. We wish our esteemed friend unbounded success and honors in his new and larger field.

Correspondence.

PAPAIN REMOVES GUN-POWDER STAINS.

To the Editor.

Sir: Perhaps the following case might be of some interest to the readers of your journal. Mr. T., age 16, last December was badly burned about the face by the premature explosion of some gun-powder. He came to me about the first of April to see if I could remove the stains. His forehead, eyelids, nose and cheeks were completely peppered with the characteristic stains. A short time before I had read of the successful removing of tattooed marks by Dr. Ohmann-Dumesnil, with glycerole of papain, and I at once determined to try it on this patient. The method employed was as follows: A minute quantity of the glycerole was dropped on the stain and pricked in with a fine needle, after the manner of tattooing; the result was a complete and successful removing of the stains without any irritation or swelling to speak of.

F. T. Field, M.D.

Elroy, Wis., May 20, 1894.

Nuclein and Nucleo-Albumin.—In view of the lively interest aroused relating to the clinical value of nuclein, the following extract from advance sheets of Gould's New Medical Dictionary will be of service:

Nuclein (*nu'-kle-in*) [*nucleus*, nucleus]. A compound of proteid substances with nucleic acid, obtained by means of artificial digestion, by Horbaczewski, Miescher, Plosz, Geohegen, Hoppe-Seyler, Lubavin, von Jaksch, Vaughan, and others, from pus-corpuscles, the spermatozoa of various animals, testicles, and thyroid gland, the yolk of hens' eggs, yeast, liver, brain, cows' milk, etc. The results of the analysis of nuclein from different sources are discordant.

	From Pus. (*Hoppe-Seyler.*)	*From the Spermatozoa of Salmon.* (*Miescher.*)	*From the Human Brain.* (*v. Jaksch.*)
C, ...	49.58	36.11	50.06
H, ...	7.10	5.15	7.60
N, ...	15.02	13.09	13.18
P, ...	2.28	9.59	1.89

Hoppe-Seyler's classification of nucleins, as modified by Halliburton, is: (1) Nucleins that contain no proteid. They are synonymous with *Nucleic acid*, *q. v.* (2) Nucleins rich in nucleic acid and in reaction very similar to that substance; they occur in nature in the chromatic fibers of the nucleus. (3) Nucleins that are poorer in nucleic acid; these form numerous links in a chain, which pass insensibly into those of the next group; they occur in nature in the nucleoli *(pyrenin)* and constitute the chief bulk of the substance called *plastin*. (4) Nucleins that contain very little nucleic acid; they are chiefly proteid in nature, and pass gradually toward proteids which contain no phosphorus whatever. They occur in the nuclei of cells; it is difficult to be positive whether the nuclear matrix is composed chiefly of these or of phosphorus-free proteids; probably both are present. They occur in milk (*caseinogen*), in egg-yolk (*vitellin*, *icthulin*, etc.), in aleurone-grains of plants *(plant vitellin)*, and in cell-protoplasm generally (*cell nucleo-albumin*). The great insolubility in alkalies that characterizes nucleins of the third group is not seen in those of the fourth. According to Horbaczewski, nuclein is the source of uric acid. Nuclein has also been proved to possess germicidal properties.

Nucleo-albumin (*nu'-kle-o-al'-bu-min*) [*nucleus*, nucleus; *albumen*, albumin]. One of the series of nucleins obtainable from cell-protoplasm, poorer in nucleic acid than the plastins of the nucleus. It appears to be the most constant of the proteids obtainable from cell-protoplasm, but is not confined to cells, being the chief constituent of tissue-fibrinogen. The chief proteid of milk (*caseinogen*), the so-called mucin of bile, and the mucinoid substance in the mucus of urine, are nucleo-albumins. Nucleo-albumin is insoluble in acetic acid, precipitable by magnesium sulphate, not reducible by prolonged heat in the presence of an acid; it is formed by the combination of nuclein and albumin in the process of digestion. It contains phosphorus. The presence of nucleo-albumin in the urine has been observed in cases of leukemia, icterus, diphtheria, and in scarlatinal and other varieties of nephritis.

Current Literature.

SOME NOTES ON APOMORPHINE.

Dr. W. A. Carmichael, of Loveland, O., read a paper on this subject before the S. W. Ohio Medical Society recently, which we find well worth reprinting (from the *Lancet-Clinic*):

Apomorphine is an artificial alkaloid derived from morphine and codeine by various processes which cause their dehydration. It forms crystals soluble in water, and more readily so in alcohol, ether and chloroform. In doses from $^1/_{20}$ to 1 grain it is emetic.

This remarkable alkaloid, brought to the notice of the profession in 1868 by Mattheissen and Wright, has grown in favor as a substance possessing remarkable physiological influences, and proved to be of peculiar therapeutical usefulness.

Apomorphine produces emesis through a different mechanism from tartar emetic, ipecacuanha or its alkaloid, emetine. Ipecac and its alkaloid, however, introduced into the system occasion emesis by the direct irritation of the terminal filaments of the pneumo gastric nerves in the mucous coats of the stomach; while tartar emetic and apomorphine appear to have a double effect, acting on the gastric mucous membrane on the one hand, and the medulla oblongata on the other. Yet there is a difference between them; thus, the action of the apomorphine is exerted directly and more energetically upon the origin of the par vagum than upon the gastric mucous membrane, while tartar emetic reverses the procedure. This is proven by the fact that it requires larger doses of tartar emetic when injected into the veins than when introduced into the stomach to produce an emetic effect. With apomorphine its maximum effect is induced by injection into the circulation. Apomorphine acts very promptly, producing emesis in from four to six minutes.

From the transient character of the secondary effects, as drowsiness, giddiness and slight weakness of the limbs; from the absence of the depressing effects, which are attendant upon some other emetics; from the facility of its subcutaneous introduction into the system,—these are characteristics which justly entitle its association with the most remarkable and useful accessions to modern materia medica, and well calculated to fulfil an important rôle in the province of therapeutics.

It has a wide range of application. Its value cannot be too highly esteemed as an emetic for children. The average time at which emesis occurs is much less than the period required by the yellow sulphate of mercury. It affords prompt relief in croup and capillary bronchitis unattended by nausea and violent retching, which makes it a great boon to children; and it is readily applied hypodermatically to subjects who refuse relief, or who are under the influence of poisons with suicidal intent or otherwise. As an expectorant, in doses ranging from $^1/_{20}$ to $^1/_{80}$ of a grain, great relief may be obtained in cases of bronchitis, tracheitis and catarrhal pneumonia. From the fact that it produces emesis by its action through the spinal nerve centres, and not by irritation of the mucous membrane, it is a preferable remedy where we have inflammatory conditions of the stomach and emetics are indicated.

In many cases we find a combination of remedies necessary to meet complications. In debility ensuing during the treatment of cases by the use of apomorphine, tonics are an essential element to counteract any deleterious symptoms arising from want of strength, and I have found strychnine a tonic of great value in such cases.

In croup, where the case is urgent, or where an expectorant effect is desired, $^1/_{100}$ or $^1/_{60}$ grain every fifteen minutes gives the happiest effect. As relief comes I extend the time of dosing to one or two hours, but continue the minimum dose. (I would say just here that I have relieved croup in like manner by the use of tartar emetic.) Where it is desirable to evacuate the stomach promptly no remedy meets the case better than apomorphine. Cardiac depression following the use of the remedy should be promptly met by suitable tonics.

SULPHUR DI-OXIDE IN DIPHTHERIA.

Dr. Harvey Gilbert, of Bay City, Mich., contributes the following clinical report to the May, 1894, issue of the New York *Medical Times:*

Nearly two years ago I commenced the use of sulphur di-oxide in diphtheria, and with such satisfactory results that the readers of the *Times* are hereby courteously invited to consider a few thoughts in connection therewith.

Conclusions drawn:

1st.—That the constant, but slow combustion of sulphur in the sick room, or in the several apartments of the house where diphtheria prevails, will prevent the second case in the house.

2d.—That it is an effective and very potent remedy in controlling the disease itself, where it already exists.

3d.—That it is perfectly safe and harmless.

Substantiating the first proposition, I will state that it is drawn from personal experience in a continuous practice with the remedy, covering a period of two years, during part of the time of which diphtheria has prevailed as an epidemic, and with an average mortality of ninety-eight (98) in six hundred and fifteen (615) cases, in one year reported; only twice in that time, viz., once in August and once in September, when the weather was very warm, so that it was impossible to control the gas, did the second case appear; and they were very light.

Regarding the statement that it is also curative within a short time after commencing the use of the SO_2, all noisome and offensive odors subside; even the breath of the patient, in malignant cases, becomes pure.

In one house a boy lay dead upon a couch, and five others were down with the disease in all degrees of severity, atmosphere reeking with bad odors; yet within four hours (time next visit) the air had become purified,—amelioration simultaneous, no other remedy used except in one case where malarial symptoms appeared, and all recovered.

There is no question but that the fumes of sulphur in sufficient quantities will cause a dangerous irritation to the air passages; but sulphur is combustible at a much lower temperature (viz.: at 180° F.) than is generated when ignited. A plate with sulphur sublimatum sprinkled upon it, and placed over a boiling pot, will check all fermentation in the room, and absolutely render all decomposition with which it comes in contact innocuous, without annoyance to the most delicate.

Of course the theory in this short statement is, that diphtheria is caused by a ferment—a microbe—and that the local phenomena are the hydro-carbons in a state of fermentation and decomposition, that the constitutional symptoms are due to the absorption through the blood of the product of this fermentation, and that this may be averted by the use of this oxidizing agent.

THE MEDICINAL TREATMENT OF CHRONIC GASTRO-INTESTINAL CATARRH ATTENDED WITH CONSTIPATION.

Dr. A. A. Eshner contribute this terse and pointed therapeutic note to a current issue of the Philadelphia *Polyclinic:*

In the treatment of a large number of cases of chronic gastro-intestinal catarrh in which constipation was a more or less prominent symptom, I have found the following modification of a well-known formula of much service:

℞ Aloin ....gr. iij.
Tinct. belladonnæ.
Tinct. physostigmatis.
Tinct. nucis vomicæ...āā f ʒ ij.
Ext. cascaræ fluid ....fʒ vj.—M.

The patient is directed to take, at first, thrice daily before meals, from 20 to 30 drops, according to the degree of obstinacy of the constipation; but the point upon which I lay most stress is that the dose shall be gradually and progressively diminished, e. g., one drop daily. The patient is informed that the point aimed at is the employment of the smallest dose necessary to secure a daily evacuation of the bowels, at the same time encouraging the cultivation of a habit of regularity of bowel-movement. The proportions given may naturally be varied in the individual case. When a bitter tonic seems additionally indicated, I often conjoin sufficient fluid extract of erythroxylon to make a three-ounce mixture. As I have stated, the results from the employment of this combination have been eminently satisfactory. The greater importance, however, is to be attached to the method rather than to the drugs alone.

THE THERAPEUTIC USES OF THE SALTS OF CESIUM AND RUBIDIUM.

In the years 1860 and 1861 Bunsen and Kirchhoff, by means of their memorable four-prism spectroscope (which, by the way, was on exhibition at the recent World's Fair in Chicago), discovered the two alkali-metals, cesium and rubidium, while examining the waters of Duerkheim, Germany. Together with others, they succeeded in finding these alkali-metals in many waters, soils, plants, and in the animal system. Further spectrum observations showed even traces of rubidium and cesium in the blood of man, demonstrating the fact that they are widely diffused in Nature, although in minute quantities.

Lucanus experimented with cesium and rubidium upon the growth of plants, and claimed that the latter do not absorb the salts of these metals and that they act inimically upon them; but repeated experiments in recent years have shown the fallacy of his claims. In 1864 Claude Bernard, the celebrated French physiologist, experimented with the salts of rubidium and demonstrated that they are less toxic to the cardiac apparatus than the preparations of potassium.

Cesium is the most electro-positive of the elements. Rubidium, its partner, comes next. Cesium and fluorin should be considered as chemical "ideals," because of their prominent chemical and physical characteristics. Fluorin, as I have elsewhere pointed out, is the most electro-negative member of the elements, while cesium is the most electro-positive. The chemical, physical, and physiological activities of cesium and rubidium rank higher than those of potassium, sodium, or the other members of the alkali-group. The presence of cesium and rubidium in plants and in the animal organism must certainly serve a purpose. Just as fluorin, in its electro-negative functions and chemical affinities, is an inherently associated member of the halogens, so does cesium behave as a member of the alkali-metals in its chemical functions and electro-positive activity. The researches of physiological chemistry teach that substances having allied properties must have also analogous actions upon the organism, and the difference of their modes of action can be explained on chemical principles.

My uncle, Dr. Edward Wernigk, once assistant of Prof. Bunsen, experimented as early as 1876 with cesium and rubidium upon his body. He again repeated these experiments on his own person in 1880, using cesium bitartrate. He believed that cesium and its salts acted favorably upon his heart, as he was suffering from a cardiac neurosis. It also acted favorably upon the generative organs. He assured me that the salts of rubidium and cesium possess the same therapeutic effects as the other alkali-salts. In experimenting upon his person he always took the cesium salts in smaller quantities than when he was taking the other alkali-salts internally. Thirteen years ago cesium salts were very expensive chemicals to experiment with, and as his deductions were mostly speculative he was not prepared to publish his results in scientific journals. I have an unpublished manuscript, written in 1881, in which I have noted the following in regard to cesium and rubidium:

"Since cesium appears to possess the most electro-positive character of the elements, one would rationally suppose that it might play an important function in the animal and vegetable kingdoms. So is it the case with rubidium, the next electro-positive element in rank. It is not difficult to understand that cesium and rubidium, on account of their very high electro-positive nature, probably perform the functional activities of the alkalies in a higher degree. Cesium is reputed to operate toxically upon the nerves of the heart, and the same is stated of rubidium. It is a great question if this be really true. It is more reasonable to suppose that the elements cesium and rubidium, in combination with the halogens, will perform their chemical and physical functions much more conspicuously in the system than the lower electro-positive members of the series."

Dr. Wernigk always used cesium bitartrate in small doses, beginning with ¼ of a grain and increasing to 5 grains three times daily. I have used the bromide and bitartrate of rubidium when experimenting on myself in doses of from 3 to 5 grains three times daily. I used rubidium bromide to alleviate nervous palpitation of the heart. I would have used cesium bromide, but was prevented on account of the high price of the salts of cesium.

As soon as the exorbitant market prices of the salts of cesium and rubidium are reduced, there is no doubt that they will often be substituted for potassium or sodium salts. Experience will also doubtless teach that they can be given in larger doses.

Cesium is the ideal alkali-metal. It was the first element discovered by means of spectrum analysis. Chemically it is the king of the alkali-metals, being the most electro-positive member of the elements and outstripping them all in electrolytic conductivity. Metaphorically speaking, it stands with rubidium in the same relationship as gold does to silver.—Dr. THEODORE W. SCHAEFER, of Kansas City, Mo., in *The Medical News*, March 10, 1894.

SULFONAL A RELIABLE HYPNOTIC.—Sulfonal has long passed the experimental stage and is now esteemed one of our best hypnotics. The qualities which render it a desirable sleep-producer are its reliability and safety, its efficacy in a large variety of conditions of sleeplessness, the facts that it is practically free from the danger of a habit and that the sleep produced by it closely resembles normal sleep, and possesses none of the disagreeable features of sleep produced by narcotic drugs. It is true that from time to time cases have been reported in which unpleasant and even dangerous effects have been attributed to the remedy, but in most instances this unfavorable action must be ascribed to its administration in excessive doses or in an improper manner, or to rare idiosyncrasy on the part of the patient. It should be borne in mind that to obtain a prompt, safe and agreeable effect from sulfonal it should always be given in hot solution cautiously cooled to a drinkable temperature, so as to avoid precipitation. By adopting this plan not only is a smaller quantity of the drug required, but sleep occurs much more rapidly and is not followed by after-effects. It should further be remembered that little can be expected from sulfonal in the presence of severe pain, although even in this condition it has been found of value in combination with morphia. Sulfonal does not weaken the heart action, and hence it forms an excellent hypnotic in acute debilitating diseases attended with insomnia. In discussing the present treatment of pneumonia, Dr. Peabody (*Med. Record*, Dec. 16th, 1893) expresses his preference for sulfonal over opium and chloral, and these views are shared by a large number of the profession. In those cases of dementia with insomnia which the practitioner is not infrequently called upon to treat, this remedy, according to Dr. J. V. Anglin (*Montreal Med. Journ.*, Dec., 1893), is often successful and ordinarily safe. An increased dose is not needed, the second acting better than the first.

Book Notices.

A Text-book of the Theory and Practice of Medicine by American Teachers. Edited by William Pepper, M. D., L. L. D., Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. Illustrated. Vol. II. Cloth, 8 vo., pp. 1046. Philadelphia: W. B. Saunders, 1894. Sold by subscription only. (Price, $6.00.)

The first volume of this encyclopedic work received favorable notice in these columns in the issue for April, 1893, and now comes the second volume which presents to all appearances a more formidable character. It is seldom that the reviewer has placed before him in condensed form the productions of such a galaxy of literary lights as are to be found in the present volume. The more recent achievements in medical lore, while they have not actually destroyed our former beliefs and teachings, have caused us to entertain very different notions as to the means of relief best adapted to arrest or correct diseased conditions and promote the welfare of the patient; and while the teachings here recorded fall short of the demands of science in certain important particulars, the work is, for the most part, fully abreast of the times.

In the limited space at our command, it will be impossible to more than refer in the briefest possible manner to what may be termed the main characteristics of the book as a whole.

Professor William M. Welch, of the Johns Hopkins University, contributes an elaborate, interesting and suggestive article relating to the Biology of Bacteria, Infection and Immunity. Notwithstanding the acknowledged authority of the author, there are good and sufficient reasons for asserting that the essay in question is not altogether impartial. For example, we are offered "a complete (?) chain of evidence . . . . to demonstrate that disease is caused by a specific micro-organism" (p. 23), as follows:

a) The presence of the organism in all cases of the disease.

b) The isolation of the organism in pure culture.

c) The reproduction of the disease by inoculation with the isolated organisms.

This chain, however, is lacking completeness in certain directions. It does not cover the history of invasion by the specific bacteria or their products. There are those who firmly believe that tubercular disease may occur otherwise than by infection from without, and it is well known that we may have "consumption" without tubercle. Further, it has been repeatedly demonstrated by both Vaughan and Prudden that diphtheria with all the attendant symptoms occurs where it is impossible to demonstrate the Klebs-Lœffler bacillus. In those cases "the isolation of the organism in pure cultures" has proven a flat failure. Again, while the micro-organism supposed to bear a causal relationship to typhoid fever is usually found in that disease, Vaughan has placed on record his belief that it is not due to any *special* bacterium, but may be due to several. This conclusion he has arrived at from an exhaustive study of the bacteriological conditions existing in a number of serious and fatal epidemics; and to cap the climax, "the reproduction of the disease by inoculation with the isolated organisms" is *not* always possible, typhoid fever and Asiatic cholera being notable examples. Indeed, Professor Welch naively admits that the artificially produced disease is not usually "the exact counterpart of the corresponding disease in human beings," and adds, "nor is it necessary, or to be expected that we should do so in order to rest satisfied with our experimental evidence."

Thus, it will be seen that the "complete chain" is seriously defective in a number of its important links, but this is bridged over by the additional statement that, "It is . . . . improbable that most of the infectious diseases whose specific micro-organisms have been carefully sought for in vain will be found to be caused by bacteria" (p. 27). This latter admission must prove cold comfort to the bacteriologists who have so long led clinicians to believe that it would be proven without a doubt that *all diseases* were of bacterial origin, and this revelation, coming from so high an authority is well calculated to dampen our ardor in this special direction, although it will doubtless stimulate further clinical research in the special domain of therapeutics.

Under the head of "Immunity," Professor Welch gives considerable attention to prophylactic and curative inoculations, and instructs us that *immunity as well as disease* "is produced by the chemical products of bacteria," and on this basis might be explained the varying effects noted from the use of Koch's tuberculin, which in many cases hastened rather than retarded a fatal termination in tubercular disease. But this untoward action may have been due to the too liberal use of the remedy, for it is stated (p. 61), that Behring, in 1892, succeeded in "potentizing" the blood-serum of a horse—for two years rendered increasingly immune from tetanus—so that 1 ccm. was sufficient to immunize five hundred thousand (500,000) mice, or two hundred (200) sheep. Evidently Behring's medication approaches the infinitesimals of our homeopathic brethren; but this does not account for, nor does our author attempt to explain, the curative properties of blood-serum *without immunization.* *)

Incidentally, the germicidal properties of nuclein (Vaughan) are referred to; considerable attention is given to Metschnikoff's theory of phagocytosis; and Buchner's "*alexins*" or Hankin's "*defensive proteids*" are also mentioned under the head of immunity. The following extract (p. 66) will be of interest:

> "According to Kossell and to Vaughan, the most important bacterial agent in the body is to be found in nucleinic acid or in nucleins. The bactericidal power of blood belongs to serum independently of the presence of cells, and is tested by mixing with the sterile blood-serum or other fluids outside of the body a known number of bacteria, and determining quantitatively, by well established methods at definite intervals of time, whether the bacteria have multiplied or been arrested in development or have died."

Professor Osler contributes a most excellent and instructive article on "Diseases of the Blood," and as some of our readers may not have access to this work, that section devoted to "*The Leucocytoses*" will be published in an early issue of this journal.

The subject of leucocytosis, although imperfectly understood at present, and probably for this reason, greatly underrated, is one deserving our most careful consideration, at least from a clinical standpoint. Studies in this direction give promise of effecting substantial changes in our methods of treating disease by the internal administration of remedies, and but little remains for the experimental physiologist until the clinician shall have caught up with his work. No physician can do anything which will add more to our knowledge of the availability of drugs than by studying the effects of medication upon the blood, under the microscope, and the comprehensive summary of Prof. Osler will answer as an introduction and stimulate investigation. A pertinent observation in this connection may be pardoned, viz.: That enlightenment does not depend upon the sum total of knowledge, but upon the proportion of its diffusion.

It is to be regretted that the same favorable notice cannot be given to Professor Pepper's recommendations relating to Enteritis, more especially, Enteritis in Children. While his advice as to the hygienic management of infants is all that could be desired, the dietetic rules are open to serious criticism. It does seem strange that "barley-water" should be advocated in acute cases as an "unirritating substance;" and even the use of veal-broth will be questioned by thoughtful clinicians. No doubt thousands of children have been doomed to an early death by the injudicious use of barley-water, and it is high time that this popular fallacy should be relegated to well-merited oblivion. Surely Prof. Pepper cannot be unfamiliar with the clinical investigations of that able veteran, Dr. Benjamin Ward Richardson, in connection with barley-water and oat-meal, which were republished in more than a dozen medical journals in this country a year or so ago; but as this practical point has been overlooked, we beg to inform him that this standard authority has set his seal of condemnation upon both these articles of food.

---

*) See editorial, "The Principle Involved in the Subcutaneous Use of Blood-serum," AMERICAN THERAPIST, p. 213, January, 1894.

In view of the admission that internal antisepsis holds "a particularly prominent place in the treatment of diarrhea in children," and that "the disease is apt to be of bacterial origin," what excuse can be advanced for offering the following incendiary mixture? (p. 809.)

℞ Salol ....gr. xv;
Pulv. cretæ. præp ......gr. xl;
Bismuth subnitras ......ʒ j vel ʒ jss;
Pulv. acaciæ...........q. s.
Syr. zingiberis..........f. ℥ ss;
Aquæ puræ .....q.s.ad.f. ℥ iv.

M. Sig.: Dose (for a child of one year), a teaspoonful every three hours.

With our knowledge of bacterial invasion, the foregoing and like combinations should be avoided—unless the object of treatment be to start a new culture-field for the mephytic micro-organisms. What benefit can be secured from the half grain of salol and the two grains of bismuth subnitrate combined with a little chalk-powder and syrup of ginger when introduced into the stomach of a child where the microbes are supposed to be multiplying by the million every hour? Nothing, absolutely nothing, and unless Nature comes to our aid, all such treatment is useless. There is, however, one efficient ingredient, the mucilage, and that alone will often save life.

In concluding this section, Professor Pepper says: "Resorcin, naphthalin, hydronaphthol and benzoate of sodium are also worthy of consideration." On the other hand, Vaughan, in his article on "Diarrheal Diseases" (*Diseases of Children*, Starr), says, "There is scarcely a drug which has been shown to have, or supposed to have germicidal properties, that has not been used in this disease (choleriform diarrhea). Among others, mercuric chloride, carbolic acid, creosote, salicylate of sodium, benzoate of sodium, salol, naphthalin and resorcin may be given by the mouth and by the rectum. Much harm and no good can be obtained from them."

"When doctors differ, who shall decide?"

Some of the recommendations given for the treatment of cholera infantum are equally unsatisfactory, unscientific and even dangerous. The statement that "stimulants must be used freely and opium is indispensible" (p. 811), in this disease, is better calculated to promote than arrest the harvest of death.

The objections, on general principles, to Professor Pepper's methods of treating intestinal disorders in children are so many and so serious that we are almost tempted to go on enumerating them in detail. At the risk of being tedious, one more will be noticed, namely, "The principal treatment (of cholera morbus) consists in prompt and free exhibition of opium, either by the mouth, or still better, hypodermatically" (p. 801). To this advice, we must enter our most emphatic protest; but what means shall be interposed to avert the inevitable calamity which is sure to befall the medical profession in the event that such teachings attract a moderate number of followers? It is evident that an intelligent public must sooner or later realize the boundless extent of Stygean darkness which intervenes between medical science and medical practice, provided Professor Pepper's teachings be taken as a fair sample of medical orthodoxy.

Aside from the sections already noted, there is much to praise and little to condemn, and it can be said truthfully that the work as a whole represents the latest teaching; but that it represents the more recent approved methods of treatment must be emphatically denied.

TREATMENT OF TYPHOID FEVER. By D. D. STEWART. M. D. Lecturer on Clinical Medicine in the Jefferson Medical College, Philadelphia, etc.; Paper. pp. 104. GEORGE S. DAVIS, Detroit, Mich. 1893. (Price, 25 cents.)

In this little book, of one hundred pages, the author has presented the facts of chief importance in regard to the mode of propagation of the disease; the precautions to be taken; the management of the sick-room; the nursing of the patient; the diet; and finally the treatment most approved at the present time.

In the foreground of treatment he places the Brand method of cold bathing, the applicability of which in private practice is often "practically out of question," and therefore not of general utility. Among the antiseptics to which allusion is made are β-naphthol and its salts, calomel, thymol, eucalyptus, carbolic acid and tincture of iodine in combination, sulphurous acid, chlorine water, quinine, etc.

One is surprised at the omission of all reference to the employment of arsenite of copper in this connection, since evidence of its great value in this and other affections of the intestines has been before the profession for some time. Thus, Dr. A. H. Thomas, of Hurley, Wisconsin, has reported (AMERICAN THERAPIST, December, 1893) a striking illustration of this, in the treatment of ninety cases of typhoid, with this as the leading remedy, having had in that number only one death, and that from rapid intestinal hemorrhage.

Among the more recent methods of treatment alluded to, but still *sub judice*, is that of Frankell, in Germany, by means of parenchymatous injections of cultures of dead typhoid bacilli, and of Rumpf, by cultures of other micro-organisms. The results were promising, but as Buchner has pointed out, it is doubtful how far the favorable results may be due to the extract of the thymus gland of the calf, from which the bouillon for the cultures were made, rather than to the dead bacilli. Here is a field for the *nucleins* of Vaughan and Aulde, from which, as in other cases, favorable results will be expected.

In the mean time, the Physicians Leisure Library is doing good work, in placing in the hands of physicians, at a nominal price, the recent advances in the several departments of medicine and surgical science. P.

ESSENTIALS OF NERVOUS DISEASES AND INSANITY: Their Symptoms and Treatment. A manual for students and practitioners. By JOHN C. SHAW, M.D., Clinical Professor of Diseases of the Mind and Nervous System, Long Island College Hospital Medical School, etc. Second edition, revised. Forty-eight original illustrations. Cloth, 12mo, pp. 194. Philadelphia: W. B. SAUNDERS. 1894. (Price, $1.25.)

This book presents an attractive outside; is well printed on good paper, and is fairly illustrated with outline sketches, made from photographs, which serve to illustrate the text in a satisfactory manner.

The chief facts relating to the etiology, diagnosis, prognosis and pathological anatomy of the several diseases are presented in a clear, practical and condensed form, which is quite as full and complete as is to be expected in a book of this class. On the important subject of treatment, however, the student who turns to this book for information will have reason to complain of the meagre bill of fare presented—a fault which is too often conspicuous in much more elaborate publications than the present compend.

It may be true that in regard to such diseases as writer's cramp, some forms of meningitis, aphasia, hysteria, herpes zoster, thrombosis or embolism, and others, it is difficult to lay down a definite and promising mode of treatment. Yet the treatment ought not to be ignored, as in the volume before us; this fault can be remedied in succeeding editions, which will doubtless be demanded, and some minor blemishes corrected, as when the author prescribes the iodide of *potassa*, which is not in accordance with the present chemical nomenclature. Otherwise, the book is well worthy of commendation; it is creditable to both the author and publisher, and has much that is original and useful. P.

Miscellany.

The Restriction and Prevention of Tuberculosis in the District of Columbia.—Report of a Committee appointed by the Society:

In view of the fact that tuberculosis is a communicable disease; that it is the most prevalent of all diseases; that it causes more deaths than any other disease; and that it is preventable by simple and easily applied measures, your committee would recommend the following:

First. That a committee be appointed to prepare the MSS. for circulars or pamphlets, with the view of having the same distributed among the people, setting forth the facts that each person having consumption is a constant source of danger to others not thus afflicted; that the disease is curable; and, above all, that it is easily preventable.

Second. That the hospital authorities be urged to set apart certain wards for the exclusive use of consumptives; although your committee believes that special hospitals for this purpose are preferable.

Third. That physicians be especially requested to inform their consumptive patients of the necessity of thorough disinfection of the sputa, and of the methods by which this can be accomplished; and further, that they insist that the rooms once occupied by consumptives be thoroughly disinfected before they are again inhabited.

Fourth. And that this Society take such action as will best produce the enactment of a law whereby no milk can be offered for sale in this city until the cows from which said milk was taken have been tested and found to be free from tuberculosis.

Signed by the committee.

Chas. H. Stowell,
J. H. Bryan,
E. A. Balloch.

Dr. McArdle offered the following amendment, which, by a vote of the Society, was ordered added to the above recommendations:

Furthermore, that the Health Officer of the District of Columbia shall be requested to formulate such regulations as will insure to all persons purchasing vaccine virus in this District, a guarantee that the animals whence such material has been obtained were treated with tuberculin and proven free from tuberculosis.

An Alleged New Metal.—The low price of silver in Paris has stimulated the inventive genius of a manufacturer, who has consequently made a new metal by means of an alloy of copper and silver, using the successful proportions of the two. He has really obtained an entirely new metal, one of a most extraordinary degree of strength, and most valuable for resisting sudden or long sustained strains. There seems little doubt that the cost of production will not be so great as to prevent its large use in the future, even should silver greatly increase in value. To the low price of silver will be credited the idea of using it as an amalgam for a specially high class of metal.—*London Court Journal.*

Dr. Daland's Recent Invention.—Dr. Judson Daland read recently a very interesting treatise on his invention for counting blood-corpuscles, which has created such a stir in the medical world, before the Johns Hopkins Hospital Society. The instrument works on the centrifugal-force principle, and accomplishes the measurement by means of comparative bulks. A quantity of blood is placed in a finely-graduated tube and the latter revolved at a speed of about one thousand revolutions a minute. The corpuscles divide by force of gravity and form on the side of the tube in easily-traceable divisions of red corpuscles, white corpuscles, and serum. The new method permits of larger and, consequently, more representative quantitatives being used in experimenting, as well as doing away with actual microscopic counting, and is certain to revolutionize the work.—*Daily Times.—Med. Bulletin.*

A New Medical Grade.—Sir B. Ward Richardson, in the last number of the *Asclepiad*, advocates the recognition, examination, and registration of counter-prescribers. He says, first, that they are honest practitioners in their way; second, they are useful to the public under certain circumstances; third, whether they are or not, they are certain to continue to exist, because it would be almost impossible to put in action any law for their suppression, if it were desirable to do so. But he would not tolerate the counter-prescribers' invasion of visiting practice under any circumstances.—*Medical Record.*

Ergot.—Ergot, in its place, is a most valuable drug. Just after the third stage of labor it is rarely ever out of place, but especially if there is a suspicion of the smallest particle of membrane or placenta having been left in the uterus, it should be given in proper doses until after the fifth or sixth day following labor, as it contracts the uterine blood-vessels and makes the absorption of decayed material much less liable. Ergot is valuable in other ways, but it is safe to say that physicians will meet with fewer misfortunes in obstetrics, who do not use ergot before the third stage of labor.—*N. Y. State Med. Reporter.*

Virginia has a new Pharmacy Law, requiring registration by all druggists and physicians who dispense medicines. The law is lenient on physicians, inasmuch as they are registered without examination; the fee is $5.00. Considering the number of physicians in the state this law should yield a nice round sum of revenue; but it serves no other purpose so long as the certificate is not based on a competency examination.